Identifying The Psychosexual Implications Of Radical Radiation Treatment In Prostate Cancer

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Abstract

The purpose of this study was to determine whether there was any evidence of psychosexual morbidity among men who experienced radical radiation treatment for prostate cancer. With relatively little known or available retrospective data on the psychosexual implications of radical radiation treatment in men with prostate cancer, this study posited eight research questions which provided the basis for the research. Fifty men from Southern Ontario, between the ages of 52 to 78 years, were included in the study. They had been previously randomized to a clinical trial comparing radical radiation therapy by external beam radiation, or radical radiation using a combination of a temporary iridium implant plus external beam radiation, for localized or locally advanced prostate cancer. Assessment of sexual functioning, drive, attitudes, body image, and sexual satisfaction was drawn from a multidimensional approach, since psychosexuality was viewed as having an impact on biological, psychological, and sociological domains of functioning. Medical chart reviews, semi-structured interviews, demographical profiles of each participant, and the Derogatis Sexual Functioning Inventory (DSFI) were the methods used to collect data over a four-month period.

Both quantitative and qualitative research methods were incorporated in the design and evaluation of the study. Frequencies, contingency analysis, Pearson's coefficient of correlation, t-tests, and ANOVA comprised the quantitative analysis. Data obtained from audio-taped interviews were analyzed qualitatively, and used for offering further insight and for facilitating the quantitative aspect of the analysis.

Overall, there was sufficient evidence to suggest psychosexual morbidity among men who were treated with radiation therapy for prostate cancer. As well,

there were a number of significant findings available to answer all of the posited research questions. The most significant findings were noted in post-treatment erectile ability and sexual activity. A post-treatment change in erectile ability was reported by eighty percent of men. Sixty percent of men noted a decrease in their ability to achieve an erection by reporting some morning stiffness only, penile rigidity insufficient for penetration, decreased control of erection, and loss of spontaneous erection. Other contributing factors associated with change in erectile status were: pain or altering sensation of orgasm, blood in ejaculate, pain and decreased amount of ejaculate, and penile numbness or pain. Eighty-two percent of men experienced a post-treatment change in sexual function, primarily due to the impact of decreasing erectile status. Only seven men reported that they experienced a decrease in desire mentally, whereas the vast majority did not experience any change in desire. Changes in foreplay, stress with optimal sexual positioning, and reduced spontaneity of sex, were other factors reported with the changes in sexual activity.

The findings in this study broaden our understanding of what middle- to later-aged men feel and experience as they venture onward following treatment. This was the first study that evaluated available prospective data on pre-treatment erectile status and sexual activity. As well, this study was the first (with participant compliance rates of 100 percent) to have included an interview format to capture the views of such a large number of men. This study concluded with recommendations and implications for future research and practice as we move in the direction of understanding what is necessary for preserving psychosexual well being and enhancing quality of life in men treated with radiation therapy for prostate cancer.

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CHAPTER ONE: INTRODUCTION

Canadian Cancer Statistics (1996) predict that one in nine men will develop prostate cancer at some time in their lives. Prostate cancer has quickly become the most common malignancy diagnosed in men in Canada and the United States, and it is currently rated second to lung cancer as the leading cause of cancer related deaths.

Historically, prostate cancer has been considered common with advancing age, and typically diagnosed in men older than 65 years of age (Garnick, 1994). Current patterns do indicate, however, that an increasing number of younger men find themselves diagnosed with prostate cancer. This is perhaps due to greater public awareness and the technically advanced screening methods used today (Mettlin, Jones, & Murphy, 1993).

The prostate gland is a normal part of the male genital system and its function is to produce fluid which carries sperm from the testes (Mosby, 1983). Cancerous tumors arising in the prostate gland may initially be diagnosed as small in nature and confined to the gland itself, or tumors may be discovered escaping the confines of the gland while spreading to outside surrounding structures and/or lymph nodes. Advanced tumors may develop into distant metastases, primarily to bone, and occasionally to soft tissue organs such as the lungs. For every stage of tumor advancement, there are suggested forms of treatment such as radiation therapy, surgery, hormonal manipulation, chemotherapy, and palliation.

To date, common treatment for localized or locally advanced prostate cancer is radiation therapy (Epstein & Hanks, 1992). Although this form of treatment is approached with curative intent, the side effects can be intense and there are no guarantees for long-term survival. One such significant risk of treatment is that approximately 30%-60% of sexually active men undergoing this form of treatment will become physiologically impotent (Garnick,1994). For men who are partially or

non-sexually active, the diagnosis of disease in a sexual gland and the psychosexual issues associated with treatment will continue to be of concern (Singer, Tasch, Stocking, Rubin, Siegler, & Weichselbaum, 1991).

Research Questions

This research study explored and identified the psychosexual implications of radical radiation treatment in prostate cancer. Within this context, the primary research question asked was:

> Is there any evidence of psychosexual morbidity among men who experience radical radiation treatment for prostate cancer?

More specifically, the following questions were also asked:

i) How do psychosexual changes experienced by men affect their perceptions of body image and image of self?

ii) How then do these changes affect the relationship dynamics between the patients and significant others?

iii) How do men prioritize their psychosexual needs following treatment?

iv) What degree of social significance do the latter developmental stages of aging have on expressed attitudes of men treated with radiation therapy for prostate cancer?

v) How much emphasis was placed on physiological needs and performance versus psychological needs of men treated with radiation therapy for prostate cancer?

vi) How do the psychosexual changes differ between men treated with external beam radiation and those men treated with implant followed

by a shorter course of external beam radiation therapy?

vii) Will men who received radiation therapy for prostate cancer experience negative sexual changes in their sexual relationships with their significant others?

viii) Will men who experienced radiation therapy for prostate cancer perceive their partners with psychosexual detachment as defined by their current level of sexual satisfaction?

Rationale

The rationale for bringing pertinent psychosexual questions to the forefront was based upon the researcher's observations after reviewing the literature that, although important, little is known as to how quality of life and particularly psychosexuality, is affected by radiation therapy. With increased availability of information in this area, health care professionals will be better equipped to address and educate patients about the sexual implications related to treatment and disease. With more emphasis on sex education, patients will acquire a better understanding of the sexual issues associated with treatment and disease. Ultimately, the reward for all may be in preserving psychosexual well being and enhancing quality of life.

Study Limitations

In keeping with the findings associated with this study, the limiting factors taken into consideration were:

i) Pre-treatment interviews and questionnaire adminstration were not conducted, although were was substantial pre-treatment data available on pre-treatment erectile ability, sexual activity, and health status of the men;

ii) The views of the significant others were not taken into account in this study since the focus pertained to men;

iii) Since the format of the interview was structured to address many issues surrounding psychosexuality, ideally a more thorough assessment could be incorporated to further explore specific areas of inquiry;

iv) There was a small number of men analyzed in the assessment of group differences;

v) The use of an external observer and/or the use of triangulation for the qualitative aspect of the study would have offered further validity reliabilty to the findings;

vi) All of the men included in this study had received radiation treatment at one major treatment facility;

vii) The men considered in this study were included in a randomized clinical trial comparing radical radiotherapy by external beam radiation versus radical radiotherapy using combination of a temporary iridium implant plus external beam radiation in surgically staged localized or locally advanced cancer of the prostate;

Background

Although medical researchers continue to seek answers to treatment questions surrounding prostate cancer, historically, little research has been available on the psychosexual issues associated with middle- to later-aged men and, specifically, of the issues pertaining to the psychosexual impact of radiation treatment and prostate cancer (Derogatis & Kourtesis, 1981; Dobkin & Bradley, 1991; Golden & Golden, 1980; Greenburg, 1984). The lack of available psychosexual information is due, in

part, to much of the medical research emphasis having been placed on refining the art of administering radiation and of clinical trials that study and compare the scientific aspects of various radiation treatment modalities. Although research efforts have been made to minimize the incidence of the more serious complications which have plagued patients receiving radiation treatment, there remains a need for more detailed inquiry of patient experiences so that these experiences may be quantified and communicated to other health care professionals in a reliable and valid manner.

In Canada, many cancer centres are treating localized prostate cancer with 6,000 centigray (cGy) to 6,600 cGy of external beam radiation therapy over six to seven weeks. The method of delivering external beam radiation therapy is with a high-energy radiation source administered from outside the body and directed toward the cancerous tumor. Although external beam radiation therapy is the most common way to administer treatment, there are other radiation treatment modalities such as the use of interstitial radiotherapy (Mettlin, Jones, & Murphy, 1993).

In early studies, interstitial radiotherapy consisted of inserting radioactive seeds comprised of iodine (I-125) or grains of gold (Au-198) directly into the cancerous tumor (Grossman, Batata, Hilaris, & Whitmore, 1982; Scardino et al., 1986). The intent of interstitial implant was to deliver a continuous radiation dose either temporarily (over two to three days) or over a longer period of time. Then, in the late seventies, some institutions incorporated temporary iridium (I-192) implants followed by a shorter course of external beam radiation therapy (Puthawala, Syed, Tansey, Shanberg, Austin, & McNamara, 1985). As to whether one radiation approach is considered or another, the existence of sexual dysfunction after radiation therapy remains consistent.

Quality of life can be broadly affected by the impact of disease on one's life. Quality of life is assessed in two significant ways: one aspect being the health care

professional's assessment of a patient's quality of life and the second aspect being feedback provided by the patient and the family. For health care professionals to adequately address quality of life, it can be broken down into three dimensions which consists of: (a) psychological, (b) sociological, and (c) physiological functioning (Till, McNeil, & Bush, 1984). Ideally, sexuality issues would encompass all three dimensions.

The need to incorporate quality of life assessment in the cancer population has become an increasingly important issue over recent years. More so in the literature is a growing recognition of the need to include parameters representing the patients' views when one examines the impact of disease and treatment on quality of life (Calais da Silva, Reis, Costa, & Denis, 1993). The need to incorporate ongoing quality of life assessment is particularly important since prostate cancer is one of the most common forms of cancer diagnosed in men older than 50 years of age (Calais da Silva et al., 1993). In middle- to later-aged men treated for localized prostate cancer, the repercussions are likely long lasting and have direct impact on psychological, sociological, and physiological functioning.

With the intent of the research set forth is this chapter, the following chapters will guide the reader further into understanding the pyschosexual implications of radical radiation treatment in prostate cancer. Chapter 2 will outline the existing literature obtained from the most current and available computer resources. The researcher's review of the literature will provide the basis for understanding why it is indeed necessary to raise the many research questions concerning psychosexuality in men diagnosed with prostate cancer. Chapter 3 will outline the methodology required in the process of exploring the phenomenon of sexuality and the relationship between sexuality, treatment, and disease.

The final two chapters of the thesis are dedicated to the findings in the study.

Chapter 4 offers a clear and concise account of the data and a quantitative analysis of the findings. Chapter 5 provides a more descriptive discussion of the findings in the analysis, along with the implications associated with treatment, and concluding recommendations for future study.

Glossary of Terms

Cancer

Cancer is a general term for more than 100 diseases that are characterized by uncontrolled, abnormal growth of cells in humans (Mosby, 1983).

External Beam Radiation Therapy

External beam radiation therapy uses high energy rays to kill cancer cells. Radiation is given from a machine located outside the body. Radiation therapy destroys the ability of cells to grow and divide. Both healthy and diseased cells are affected, but most healthy cells recover quickly (Mosby, 1983).

Health Care Professional

A health care professional refers to any qualified individual who participates in delivery of health care such as a licensed physician, registered nurse, registered dietitian, and a registered social worker.

Interstitial Implant Therapy

The interstitial implant involves inserting radioactive sources such as iodine seeds, gold grains, or iridium wires into the prostate tumor. Temporary implants remain in for only two to three days, while other implants may remain for a longer period of time. In this study, the implant is temporary, and is comprised of iridium

wires. The procedure is performed in hospital and the patient is hospitalized for two to three days.

Patient

A patient is one who receives health care under pathological circumstances. In this study, it is a middle- or later-aged male who is diagnosed with early stage prostate cancer and who has received radiation treatment in both hospital and in an ambulatory setting.

Prostate Cancer

Prostate cancer is a disease which develops over years in the prostate gland in men. It is usually detected as a tumor by rectal examination and is diagnosed primarily in men greater than 50 years of age (Calais da Silva, Reis, Costa, & Denis, 1993). The exact cause of prostate cancer is unknown.

Prostate Gland

The prostate gland is a small walnut shaped gland located below the bladder and above the rectum in males. Its function is to produce semen, the thick fluid that carries sperm from the testes (Mosby, 1983).

Quality of Life

Quality of life is affected by the impact of disease on one's life. It can be broken down into (a) psychologic, (b) sociologic, and (c) physiologic functioning (Till, McNeil, & Bush, 1984).

Radiation Oncologist

A radiation oncologist is a physician with advanced education in the field of cancer care and who specializes in the delivery and care of patients receiving radiation therapy.

Human Sexuality

Human sexuality can be described as including the physical characteristics and capabilities for specific sex behaviors together with psychosexual learning, values, norms, and attitudes about these behaviors (hence psychosexuality) in humans (Chilman, 1979). In this study, human sexuality pertains to the above behaviors as they are observed in men.

CHAPTER TWO: REVIEW OF THE LITERATURE

What appears to be evident when reviewing the literature on prostate cancer is a need for more available research on psychosexuality and its impact on men who undergo treatment. Consistently, the issues pertaining to psychosexuality are identified in the literature as being worthy of future exploration but the sexual implications of prostate cancer and treatment are often identified as concerns of men and are not readily provided in the true scope of their existence.

Generally, human sexuality is a phenomenon which is associated with a variety of descriptions. In order to understand the sexual implications of radical radiation therapy in men diagnosed with prostate cancer, it is important to truly capture a holistic perspective of human sexuality which encompasses both physiologic and pyschologic functioning. Therefore, human sexuality is best defined by Chilman (1979) as including the physical characteristics and capacities for specific sex behaviors together with psychosexual learning, values, norms, and attitudes about these behaviors.

Drawing from the basis of Chilman's (1979) holistic expression of human sexuality, it is indeed important that researchers do not base their sexuality findings exclusively on the physiological aspect of functioning or on "potency" as they have historically, but also consider other psychosexual aspects of the individual as well. Even when claims of physiologic potency after external beam radiation therapy for prostate cancer are not uncommon and reported by various authors (Bagshaw, Cox, & Ray, 1988; Banker, 1988; Goldstein, Feldman, Deckers, Babayan, & Krane, 1984; Mameghan, Fisher, & Watt, 1982; Mittal, 1984; Rhamy, Wilson, & Caldwell, 1972), the rate of incidence remains contradictory and the definition of impotence remains unclear.

Although authors such as Zinreich, Derogatis, Herpst, Auvil, Piantadosi, and Order (1990a) and Van Heerigen, De Schryver, and Verbeek (1988) have done their research on sexual functioning after radiation therapy and the results focused primarily on physiologic sexual functioning, they did acknowledge the importance of sexuality in prostate cancer. Zinreich et al. (1990a) conducted pre-treatment evaluation of sexual function on forty-three patients with adenocarcinoma of the prostate prior to radiotherapy. Although their results focused primarily on the varying incidence of physiologic impotence, they maintained that the most commonly ignored aspect of cancer therapy is the impact of the illness and its effect on sexuality. Van Heerigen et al. (1988) also acknowledged the physiological emphasis in their study but, when other issues of sexuality were taken into account, a higher porportion of men appeared to experience problems, thereby encouraging the need for further psychosexual exploration.

To date, there remains only one recently completed study by Helgason, Fredrikson, Adolfsson, and Steineck (1995) which evaluated to what extent patients treated with radiation therapy for prostate cancer experienced change in sexual functioning, and to what extent this affected quality of life. In the absence of a standardized questionnaire on sexual function and its influence on quality of life in elderly men, the Swedish group developed the "Radiumhemmets Scale of Sexual Functioning" which was administered to 53 men treated with radiation therapy for localized prostate cancer. The results indicated that external radiation therapy for prostate cancer had a specific impact on sexual desire, erectile capacity, and orgasm functions, and in a majority of patients, this reduced quality of life. Never before, (other than this research) has there been a study of this kind that offers a detailed account of the post-treatment functioning experience and its effect on quality of life in men treated with radiation therapy for prostate cancer.

According to Schain (1994), an individual's sexuality and sexual activities may be a major contributor to one's self-esteem and an important aspect of feeling alive and connected to another person. These specific types of sexuality related behavior which may be affected by a cancer diagnosis or treatment are therefore not limited solely to physiological functioning. Schover (1992) was also in agreement in that although some cancer treatments damage the physiological organs involved in the functioning genito-urinary system, all have a psychological impact on sexuality. According to Dobkin and Bradley (1991), negative emotional states such as anxiety, depression, anger, and despair may disrupt sexual activity. A loss of a sense of personal control over bodily functions may disturb patients to a point where they avoid intimate encounters. Derogatis (1980), Silberfarb (1977-78), Wabrek and Wabrek (1976) all agreed that disturbances in body image have been hypothesized to contribute to the development of sexual dysfunction in cancer patients when the disease manifests itself in the sexual organs. Ofman (1993, 1995) also cited sexual body image and identity in men as frequent concerns of genitourinary cancers.

Whether or not there are existing sexual concerns among men having experienced treatment for prostate cancer can no longer be an issue for questionable debate since the recent completion of Litwin, Hays, Fink, Ganz, Leake, Leach, and Brook's (1995) landmark comparison study of men diagnosed with clinically localized prostate cancer. They compared the quality of life in 528 men categorized as having undergone radical prostatectomy, radiation therapy, or observation alone. This was the first study of its kind that used an age-matched comparison group to establish the natural history of sexual, urinary, and bowel dysfunction. The major outcome of the study revealed that sexual function and sexual bother in both treatment groups scored significantly worse in the quality of life assessment than the comparison group of observation alone. And although the results also indicated that

the overall activities of the patients' day-to-day lives were not compromised after prostate cancer therapy, it was the sexual functioning domain that was directly affected by treatment.

Cassileth, Soloway, Vogelzang, Chou, Schellhammer, Seidmon, and Kennealey (1992) ascertained that since prostate cancer strikes only men who traditionally have been reluctant to express emotional needs, the psychosexual aspects of this malignancy have received less attention than those of other malignancies. A perception such as this supports the need for researchers to take on the responsibility to allow the expression of male feelings and to determine what male concerns exist. According to Beckham and Godding (1990), the potentially important variables that play a role in sexual dysfunction among prostate cancer patients are premorbid sexual functioning, definition of sexual satisfaction, body image, functional status, marital status, treatment modality, and stage of disease.

Calais da Silva, Reis, Costa, and Denis (1993) reported their research findings on the premise that, in recent years, there has been growing recognition of the need to include a more subjective patient focused perspective of each individual situation. The outcome of administering a patient focused quality of life questionnaire to a group of men with prostate cancer demonstrated a large variation between the patient's and the physician's evaluation of performance status and sexual status in that the physician's evaluation was insufficient when compared to that of the patient. The recommendations as a result of this study were that perhaps quality of life parameters were better evaluated by the patients in order to provide more sufficient attention to performance status and sexual functioning, thereby eliminating any possible dissatisfaction with the health service.

Similarly, after providing a discussion on quality of life in prostate cancer, Fossa, Kaasa, Calais da Silva, Suciu, and Hengeveld (1992) identified a strong

relationship between quality of life and sexuality. They also made the point that there was obvious reluctance in the medical community to deal with sexual aspects; however, patients expected their physicians to discuss the question of sexuality with them before making important treatment decisions. This conclusion was based on Metz and Seifert's (1990) study findings that substantially supported the notion that physicians' abilities to diagnose and manage sexual concerns were insufficient. Whether a cause and effect relationship existed between the lack of available psychosexual data and a physician's insufficiency to deal with sexual matters, the existence of sexuality issues in the literature continues to be a recurring theme.

According to Golden and Golden (1980), our culture dictates that being sexual in the sense of being desirable and capable of relating sexually is extremely important and is often equated with a sense of adequacy as a person. Therefore, an appreciation of the importance of sexual adequacy to the quality of life experience for many cancer patients will overcome the reluctance most health care providers experience when faced with addressing sexuality issues.

In order to overcome historical prudishness toward sexuality so characteristic of Western society, they suggested that health care professionals must adopt a level of comfort when discussing sexual issues with patients. Secondly, one needs some basic knowledge about the sexual consequences of an illness like cancer and knowledge of what services exist and where one may refer the patient. Finally, it is necessary to raise the discussion of sexual concerns at all stages of the illness and treatment: when the diagnosis is made, when treatment planning occurs, and again, in the early and later phases of recovery.

Zinreich et al. (1990a) supported the final task outlined by Golden and Golden since it was their recommendation that when treating early stage prostate cancer, determination of the level of sexual function at the time of diagnosis should be a

major consideration when choosing a treatment approach. As well, in another study conducted by Zinreich et al. (1990b) twenty-seven patients with prostate cancer were quantitatively and qualitatively evaluated prior to and at twelve months after radiotherapy. They concluded that it was necessary to evaluate sexual functioning prior to and post-treatment for the true implications of treatment. Overall, their belief was that the fundamental question in prostate cancer today, beyond the curative approach, is the question of quality of life, and a loss of sexual function is an important aspect of the quality of life in men with prostate cancer.

Singer et al. (1991) assessed how 50 men valued survival and sexual potency. When asked to trade off radical prostatectomy or radiation therapy for localized prostate cancer, 68% were willing to trade off a 10% or greater advantage in five-year survival by choosing radiotherapy in order to maintain potency. Thirty-two percent were unwilling to trade off any survival. While acknowledging that the sample size of 50 men chosen for this study was considerably small, it was interesting to note that the willingness to trade off survival for sexual potency was significantly related to the level of education, but not to age, interest in sex, erectile ability, or frequency of sexual intercourse.

Initially, it was Greenburg (1984) who suggested that sexual behavior is always simultaneously somatic, psychological, and, interpersonal. In Derogatis's (1984) response to Greenburg's article, he supported this notion by maintaining that assessment in all three areas provided a platform for integrated measurement necessary for evaluating sexual functioning. Above all, the most comprehensive integration of sexual functioning in the physiologic, psychologic, and, sociologic domains, and the basis of this research thesis was from Dobkin and Bradley's (1991) assessment of sexual dysfunction in oncology patients. Although the early philosophy of domain integration was substantiated by previous authors, it was

Dobkin and Bradley who truly captured the scope of multidimensional assessment of sexuality specific to the oncology population. They provided the reader with a sound review of the existing literature, offered a critical perspective on the various measurement instruments available, and included suggestions for implementing quality sexual assessment.

Dobkin and Bradley (1991) were careful to suggest only those instruments felt to be appropriate for the assessment of oncology patients. This was somewhat of a challenging task due to the obvious lack of available sexuality instruments designed specifically to meet the needs of the prostate oncology population. Instead, the authors suggested the incorporation of a combination of some existing instruments, along with a structured interview in order to adequately meet the task of providing a multidimensional assessment of sexuality. For example, it was within this context that they suggested using a limited number of subtests that comprised the Deragatis Sexual Functioning Inventory (Derogatis & Melisaratos, 1979), one of the instruments used in this thesis. The subtests recommended were those felt to be appropriate for assessing sexual function in the oncology population and were therefore, used in this thesis.

Another common theme identified while reviewing the literature on sexuality and prostate cancer, was the issues surrounding developmental stage. Greenburg (1984) identified developmental stage as being among the important factors that influence sexual behavior. Blum (1990) addressed the developmental issues associated with men diagnosed with prostate cancer as being financial worries, loss of family members, grown children living away from home, and impending death. Dobkin and Bradley (1991) identified financial difficulties and occupational changes as having a psychological effect heightened by the demands of cancer and its treatment.

In Ofmans's (1993) earlier work, she felt that developmental life stage was a very important variable in adaptation to cancer. Since prostate cancer is a disease that is predominantly diagnosed in later-aged men, these individuals are developmentally at a stage in their lives where they likely have had to cope with a spectrum of losses: role changes owing to retirement, death of family members and spouse, and the moving away of grown children. For others, the diagnosis of prostate cancer may lead to a sudden sense of being old. In Ofman's (1995) most recent work, she again suggested that developmental stage at the time of diagnosis and treatment was an important variable in adaptation to cancer. Therefore, based on all of the above emphasis placed on developmental stage in prostate cancer and its influence on an individual's sexuality, an exploration to discover its degree of social significance has been included in this thesis.

The theorist whose ideas most closely relate to the findings in the literature is Cross (1981), a well known developmental theorist who defined one's development with respect to phases of life in that it is the responses people make to age and social expectations as they advance through the phases of adulthood. It is not necessarily a developmental process if one regards development as a continuous flow toward growth and maturity. Rather, it represents qualitatively different phases through which people pass from birth to death. These phases can be identified as common to a given age group (Cross, 1981).

Cross (1981) identified the aged 57-65+ individual as experiencing "The Mellowing" and "Life Review" phase in the life cycle and identified marker events and characteristics common to those identified in the literature by the various authors as being pertinent to the prostate cancer population. According to her, such marker events for the "Mellowing/Life Review" phase included possible health problems, retirement, changes in finances, and death of spouse and/or friends. The characteristic

stance of this group included the feeling that the spouse and family is increasingly important, becoming more comfortable with self, a life review of accomplishments, and perceiving death as a new presence. It will be interesting to observe similar findings noted by previous authors and to find patterns compatible to Cross's life-cycle phase in this study's population of men.

It was apparent, after reviewing the literature, that there was ample opportunity to expand on the work of previous authors. The most consistent patterns observed in the literature were the brief and somewhat confined comments made by authors concerning their sexuality findings. Often, there was little satisfation that the true scope of the many issues concerning prostate cancer and sexuality have been explored and reported with enough depth that these issues warrant. And although much of the sexuality research findings noted in the literature are certainly promising, more specific findings are required of radiation treatment and its lasting effects when it is administered to men diagnosed with prostate cancer.

Part of the difficulty when researching a phenomenon such as sexuality is the need to consider and include the many variables that may possibly impact on the study findings. Since there is not one definitive methodology that exists to facilitate research in this area, a researcher is left with his/her own creativity and imagination. Chapter 3 provides the methodology incorporated by the researcher for identifying the psychosexual implications of radical radiation treatment in prostate cancer.

CHAPTER THREE: METHODOLOGY

Introduction

The intent of this study was to research an area that has relatively little known or available data on the pyschosexual implications of radical radiation treatment in men with prostate cancer. Patient assessment was drawn from a multidimensional approach since psychosexuality was viewed as having an impact on biological, psychological, and sociological domains of functioning. The design was quasi-experimental with a descriptive component. Both quantitative and qualitative research methods were incorporated in the design and evaluation of the study.

Population and Sample

The population was men who required radical radiation therapy for a diagnosis of localized or locally advanced prostate cancer. The study sample consisted of 50 men who had been previously randomized to a clinical trial which commenced accrual in 1992. The trial compares radical radiation therapy by external beam radiation versus radical radiation using a combination of a temporary iridium implant plus external beam radiation in localized or locally advanced prostate cancer.

Patients were randomly assigned to complete either (a) 6,600cGy of external beam radiation in 33 fractions over 61/2 weeks, or (b) iridium implant of 3,000cGy for 48-72 hours followed by 4,000cGy of external beam radiation in 20 fractions over four weeks. As well, all of the patients had undergone pelvic lymphadenectomy in order to assess for any evidence of metastatic disease in the surrounding lymph nodes, prior to receiving radiation therapy. The purpose for assessing lymph nodes was that any cancer findings found in lymph nodes would have indicated that the patient had more advanced disease and, therefore, another treatment modality such as hormone therapy would have been indicated rather than radiation therapy.

The rationale for determining a sample size of 50 men was based on the number of potentially eligible men who had been previously included in the aforementioned clinical trial. The advantages of choosing a sample of men involved in a clinical trial are as follows:

i) All of the men had been treated and followed in one major urban centre. They were all followed in the same manner with the exception of receiving one treatment or the other;

ii) All of the men had surgically confirmed localized or locally advanced prostate cancer;

iii) There was available registration data on age, performance status, whether there was erectile ability, and if they were sexually active. (Psychosexual functioning was not an objective endpoint indentified in the clinical trial). The registration data provided the researcher with retrospective baseline information which would not have otherwise been captured in this study;

iv) The outer age limits had been previously set and, therefore, all of the men examined in this study ranged in age from 50-78 years, with a median age of 65 years;

v) All of the men already involved in the clinical trial had been randomly assigned to one treatment or another which eliminated any bias due to initial treatment decisions;

vi) Since the initiation of the clinical trial, all of the patients considered for this study were within a three-month to three-year follow-up period post-treatment.

Overall, the features associated with this study's sample of men are concisely outlined below:

i) The sample was gender specific in that this study consisted of men;

ii) The sample consisted of men who were diagnosed with localized or locally advanced and histologically proven adenocarcinoma of the prostate;

iii) The sample included predominantly Caucasian men;

iv) The sample consisted of men geographically located in Southern Ontario;

v) The significant age group included those who were middle-aged or aged with the maximum age limit of 78 years;

vi) All of the men considered for this study were within one month to just over two years follow-up from having completed radiation treatment for prostate cancer;

vii) All of the men had been considered fit for surgery and had undergone staging lymphadenectomy to exclude the presence of advanced disease prior to having been treated with radiation therapy.

Treatment Variables

Since the researcher's intent was to study the psychosexual implications of radiation treatment for prostate cancer, the independent variable identified in this study was the radiation therapy. Radiation therapy was comprised of 33 treatments of external beam radiation or temporary iridium implant for 48-72 hours followed by 20 treatments of external beam radiation therapy. The dependent variables pertained to the psychosexual outcomes associated with sexual functioning, drive, attitude, body image, and sexual satisfaction. These psychosexual outcomes were measured by administering one questionnaire to each patient.

The existence of confounding variables such as age, marital status, occupation, income level, educational background, and religious affiliation were examined by collecting these data in a structured form prior to having each patient

complete the questionnaire. Other confounding variables such as concurrent medical illnesses, medication intake, and general performance status were documented after completing a review of each patient's chart.

Since the prospect of discovering the presence of intervening variables was taken into consideration when designing this study, the semi-structured interview approach, in particular, helped to minimize any intervening variables that could have possibly appeared. For example, one intervening variable that could potentially have had an effect on the dependent variables and that was accounted for in the interview was the amount of sexuality knowledge conveyed by the patient prior to receiving treatment at the cancer facility.

Procedures

The men were contacted by the researcher via telephone to obtain initial permission for participation in the study during the months of November and December, 1995. A total of fifty patients were considered for this study. Arrangements were made to meet with each patient in order to conduct a 30-minute audio-taped interview and to administer the questionnaire. The method of audio-taping interviews is an approach commonly used for many years and in this particular setting, it did not appear to have an inhibiting effect on the men. Written consent was obtained prior to initiating each patient meeting (see Appendix A).

The majority of patients were interviewed without the presence of a significant other, since the required data focused primarily on the patient. There were a few situations, however, when the patient wanted his spouse present, and this was acceptable provided that the spouse was aware that the responses to the interview questions would be provided by the patient alone. Both the interviewing and the questionnaire administration were completed at the cancer facility which the patient

attended. The researcher thought it would take approximately 30 minutes to complete the interview; however, patients were allowed the time necessary to finish. The questionnaire was completed in a maximum time of 30 minutes. Only one interview and questionnaire administration was necessary per patient. With a total of 50 patients, the amount of time required for gathering the data was 16 weeks (January to April, 1996), with approximately three to four patients being interviewed per week.

Instrumentation

In order to optimally assess psychosexuality, it was important to view the patient from a multidimensional perspective, thereby taking into account the biological, psychological, and sociological domains of functioning. The instrumentation implemented in this study was viewed as providing assessment pertaining to all three domains of functioning.

To obtain a biological assessment, it was necessary to conduct a review of the patient's chart. A chart review provided confirmation of cancer status, treatment, concurrent medical illnesses, medication intake, erectile status pre-treatment, and overall performance status (Appendix B). The benefits of collecting biological information were not solely limited to the advantage of using a multidimensional model, but it also provided validity to the study findings, and reliability in the patient population being studied. It also accounted for the presence of existing confounding variables.

To gain a sociological perspective, a semi-structured 30-minute interview was conducted for each patient. The interview also facilitated an identification of each individual's priority of psychosexual needs. Since a semi-structured interview format increases the validity and reliability of data collection, it was chosen over an open-ended approach (Dobkin & Bradley, 1991). The interviews also helped to capture

information and to address any issues that the questionnaires did not, such as a more intimate inquiry of the patient's relationship outcomes (Appendix C).

Patient demographics were also associated with the sociological domain. The questions asked were associated with age, marital status, occupation, income status, educational background, and religious affiliation. Since this study reflected only a small cross-section of the prostate population, it was important to include demographics in the analysis of the study findings. The demographics for each patient were collected in a structured format from the questionnaire (Appendix D).

Since Masters and Johnson (1966) described patients with sexual dysfunction as being free of any formal psychiatric disorders, and there is no clear link to sexual function and neurotic disorders, the researcher decided that a psychological profile of each patient was not required for the purposes of this thesis. However, to assess psychosexuality from a psychological perspective, Derogatis and Melisaratos's (1979) Derogatis Sexual Functioning Inventory (DSFI) was used to explore sexual drive, attitude, body image, and sexual satisfaction. The Derogatis Sexual Functioning Inventory is a widely used self-reporting multidimensional instrument consisting of 10 subtests. It has not been commonly used in the Oncology setting.

The rationale for incorporating a multidimensional instrument, such as the DSFI, was on the basis that it provided information not solely on the overall status of the individual, but also included the various aspects of one's functioning, thereby highlighting both strengths and weaknesses (Derogatis & Melisaratos, 1979). Multidimensional instruments provide detailed information in specific areas, hence, discrete items of the subtests may be reviewed and evaluated. For the purposes of this study, four of the ten subtests were selected because they provided sufficient instrumentation without overburdening the patients (see Appendix D). The psychometric properties of the DSFI have been well tested and it was found to be a

reliable and valid instrument (Dobkin & Bradley, 1991). The subtest and component coefficients were examined and the reliability for the various subtests of the DSFI was quite good. Both internal consistency and test-retest coefficients tended to be very high and well within the acceptable range (Derogatis & Melisaratos, 1979).

The sexual drive subtest consisted of seven items that measured the degree of interest in sexual activity such as intercourse, masturbation, and kissing. The attitude subtest was presented in the form of 30 statements that reflected views about sexual matters such as thoughts on whether premarital sex was acceptable, or whether pornography was harmful. The statements provoked a response on a five-point Likert scale which indicated varying degrees of liberalism or conservatism and were correlated into the assessment of sexual functioning.

The body image subtest consisted of 10 items, followed by an additional five items that were specific to men. Responses were made on a five-point Likert scale according to their level of agreement with statements concerning the appreciation of the physical aspects of one's body. The sexual satisfaction subtest consisted of 10 true-false statements designed to target sexual satisfaction issues such as sexual satisfaction with partner, level of interest in sexual activity, and concerns about performance. Following the sexual satisfaction subtest, there was one final question that asked the participants to record, on a rating scale, their personal evaluation of how satisfied they were with their sexual relationship.

Data Analysis

A quantitative analysis of the data was conducted in order to identify the common and pertinent responses expressed by the sample of prostate cancer patients. Frequencies, contingency analysis, Pearson's coefficient of correlation, t-tests, one-way analysis of variance (ANOVA), and Scheffe's test comprised the quanitative

analysis. Tables and graphs were implemented where possible in order to provide clarity and validity to the data. The results of the findings from the quantitative analysis are reported in the following chapter.

Qualitative analysis was also used with the data collected from patient interviews. The data obtained from the interviews were organized into categories based on the frequency of responses to each of the interview questions. When analyzing the qualitative data, there were themes or existing patterns which emerged. Only the most commonly observed themes or patterns of findings were incorporated into the thesis for the purposes of offering further insight and for facilitating the quantitative aspect of the analysis. A discussion of both the qualitative and the quantitative findings will be presented in the final chapter of the thesis.

CHAPTER FOUR: RESULTS

Introduction

The purpose of this study was to identify the psychosexual implications of radical radiation treatment in men diagnosed with localized prostate cancer. Descriptive and inferential statistical techniques were used for the analysis of data. The findings are presented in this chapter.

Profile of the Sample

A sample of fifty men was included in the study. Each individual was asked to respond to a total of seven different questions representing the demographical component of the thesis. The frequency and categories of responses are presented in Table 1.

The mean age of participants was 68 years, with a range of 52 to 78 years. The median response was 68 years. Forty-three (86%) men were married, one was never married, two were divorced, one was separated, and three were in a common law relationship. Forty (80%) were retired, and ten (20%) were currently employed.

The net income was reported in ranging responses, with six (12%) earning $11,000 to $20,000, twenty (40%) earning $21,000 to $30,000, nine (18%) earning $31,000 to $40,000, six (12%) earning $41,000 to $50,000, and seven (14%) placed their earnings over $50,000. Two individuals (4%) did not answer the question. The results of the question concerning level of education showed that eight (16%) had obtained university standing, six (12%) were educated at the community college level, twenty-three (46%) had completed high school, and twelve (24%) indicated the "other" category which commonly placed them below high school standing. One individual did not provide a response.

Table 1

Profile of the Participants

N = 50

Variable	f	%
Marital Status		
Married	43	86
Never married	1	2
Divorced	2	4
Separated	1	2
Common-law	3	6
Employment Status		
Retired	40	80
Employed	10	20
Net Income		
$11,000 - $20,000	6	12
$21,000 - $30,000	20	40
$31,000 - $40,000	9	18
$41,000 - $50,000	6	12
Over $50,000	7	14
No reponse	2	4
Level of Education		
University	8	16
Community College	6	12
High School	23	46
Other	12	24
No response	1	2
Religious Faith		
Catholic	10	20
Protestant	37	74
None	2	4
Other	1	2
Attend Religious Services		
Very active in organization	5	10
Attend weekly services	8	16
Attend services occasionally	9	18
Very rarely attend services	17	34
Never attend services	10	20
No response	1	2

Two questions were asked about religion: one concerning the type of religious faith, and the other about the degree of involvement. Ten (20%) reported being Catholic, thirty-seven (74%) were Protestant, two (4%) did not report any religious affiliation, and one individual (2%) indicated the "other" category and responded with being Anglican. Five (10%) said they were very active in their organization, eight (16%) attended weekly services, nine (18%) attended services occasionally, seventeen (34%), very rarely attended services, and ten (20%) never attended services. One individual had no response.

Medical Chart Review Data

The frequency distributions of the data after conducting a review of each individual's medical chart are summarized in Table 2. Although all of the men considered for this study were diagnosed with localized prostate cancer, thirty-three (66%) were diagnosed with a B2 carcinoma of the prostate, and seventeen (34%) with stage C1 carcinoma of the prostate. Twenty-two (44%) received treatment with external beam radiation alone, while twenty-eight (56%) received a combination of implant and external beam radiation. At the time of conducting the interviews, each individual was in a minimum three-month time span after having received treatment. The varying number of months after having received treatment is presented in a bar diagram in Appendix E.

When establishing chronic pre-treatment medical conditions, twenty-one (42%) reported some form of a chronic condition. Twenty-nine (58%) did not have a condition, either documented in the medical chart, or reported by the individual at the outset of the interview. Of those with chronic conditions, eight (16%) had hypertension, one (2%) with Type 1 diabetes, two (4%) with angina, one (2%) with hypercholesterolemia, and three (6%) with a heart condition. Three were listed in the

Table 2

Medical Chart Review

Category	f	%
Stage of Prostate Cancer		
B_2	33	66
C_1	17	34
Treatment		
External beam radiation	22	44
Implant and external beam radiation	28	56
Chronic Pretreatment Medical Problems		
Yes	21	42
No	29	58
Type of Chronic Condition		
None	29	58
Hypertension	8	16
Diabetes	1	2
Angina	2	4
Hypercholesterolemia	1	2
Heart Condition	3	6
Other	3	6
Multiple problems	3	6
Medication		
Yes	30	60
No	20	40
Chronic Post-treatment Medical Problems		
None	45	90
Angina	2	4
Heart condition	1	2
Multiple problems	1	2
Pain in knees - not confirmed	1	2
Performance Status		
100%	49	98
90%	1	2

"other" category which included such ailments as osteoarthritis, asthma, and chronic active hepatitis. Three (6%) reported having "multiple problems" or more than one of the reported conditions. While twenty (40%) reported not being on any medication, thirty (60%) men were on some form of medication pre-treatment. Although forty-five (90%) did not develop a chronic condition following treatment, two (4%) developed angina, one (2%) a heart condition, one (2%) had multiple problems, and one (2%) had a condition not fully confirmed at the time of interview.

Despite the existing pre-treatment chronic conditions associated with some of the men, forty-nine (98%) were considered in a pre-treatment assessment by the attending health care team as having a general performance status of 100 percent. A performance status at this level refers to the individual as being fully active, without disease limiting factors impinging on the activities of daily living. Only one individual was documented as having a performance status of 90 percent, falling just below a fully functioning status.

Questionnaire Data

The data collected from the questionnaire responses represented the post-treatment dependent variables of sexual drive, attitudes, body image, sexual satisfaction, and overall satisfaction with sexual relationship. Each individual was assigned a test-score (T-score) for each of the variables after questionnaire responses were tabulated using Derogatis's scoring manual. Percentile rankings of what was factored to be "the norm" of functioning for each subtest were provided in the scoring manual. A comparison was made between the T-scores of the individual and where each individual fell within the percentage of rank for each subtest. The percentage norms were incorporated by Derogatis (see Appendix F).

Table 3 represents T-scores calculated for each individual per variable. The mean T-scores of sexual drive was 40.2 with a standard deviation (S.D.) of 6.9. Thirty-nine men fell below the 50th percentile ranking, while nine were either on it, or above. Two men did not respond in this section of the questionnaire. The responses to the sexual drive subtest, which consisted of seven items that measured the degree of interest in sexual activity such as intercourse, masturbation, kissing/petting, and sexual fantasies, were further calculated individually in a frequency distribution (Table 4). At the time of completing this questionnaire following radiation treatment, 46 percent said they were not having sexual intercourse. Fourteen percent were having intercourse less than once per month, 18 percent were having intercourse 1-2 times per month, 14 percent were having intercourse on a weekly basis, 4 percent were having intercourse 2-3 times per week, and 4 percent did not respond to the question. Sixty-four percent responded "not at all" to masturbation, 10 percent participated in masturbation less than once per month, 16 percent participated in masturbation 1-2 times per month. Four percent participated in masturbation once per week, 2 percent participated in masturbation 2-3 times per week, and 4 percent did not respond to the question.

When asked about kissing/petting, 16 percent said "not at all," 8 percent said less than once per month, and 8 percent engaged in kissing/petting 1-2 times per month. Six percent said weekly, 16 percent said 2-3 times per week, and 6 percent said 4-6 times per week. Eighteen percent said once per day, 8 percent said 2-3 times per day, and 10 percent said they engaged in kissing/petting 4 or more times per day. Four percent did not respond to the question. Forty percent responded to "not at all" as they did not have sexual fantasies. Eight percent had fantasies less than once per month, 18 percent had fantasies 1-2 per month, 8 percent had fantasies once per week, 8 percent said 2-3 times per week, and 2 percent said 4-6 times per week. Two

Table 3

Frequency Distribution of Questionnaire Responses

N = 50

Variable	Mean	SD	Variable	Mean	SD	Variable	Mean	SD
Drive	40.2	6.9	Attitudes	37.5	7.9	Body Image	40.4	7.9
T-Score Value	f	%	T-Score Value	f	%	T-Score Value	f	%
24	1	2	23	1	2	30	3	6
27	1	2	24	1	2	32	1	2
32	1	2	26	1	2	33	11	22
33	2	4	29	3	6	35	1	2
33	2	4	31	1	2	35	2	4
34	2	4	31	2	4	40	5	10
35	7	14	33	2	4	41	1	2
36	2	4	34	1	2	42	1	2
38	2	4	34	1	2	42	1	2
40	3	6	35	5	10	43	3	6
41	1	2	35	3	6	43	1	2
41	5	10	38	1	2	44	2	4
42	2	4	39	1	2	44	5	10
42	1	2	39	1	2	45	1	2
43	4	8	40	1	2	45	2	4
45	1	2	41	1	2	47	1	2
45	2	4	43	1	2	50	2	4
50	6	12	43	2	4	53	1	2
52	2	4	44	3	6	58	1	2
58	1	2	46	1	2	60	1	2
No response	2	4	46	4	8	64	1	2
			53	1	2	No response	3	6
			62	1	2			
			No response	11	22			

(Table continues)

Variable	Mean	SD	Variable	Mean	SD
Sexual Satisfaction	46.0	8.9	Overall sexual satisfaction	49.4	12.0
T-Score Value	f	%	T-Score Value	f	%
25	1	2	35	1	2
28	1	2	35	4	8
38	4	8	37	1	2
40	6	12	40	3	6
43	6	12	43	11	22
45	3	6	45	6	12
50	5	10	46	3	6
55	5	10	50	2	4
60	5	10	53	1	2
No response	14	28	63	4	8
			65	3	6
			66	3	6
			75	3	6
			No response	5	10

Table 4

Frequency Distributions of Sexual Drive

Variable	f	%
Intercourse		
Not at all	23	46
< 1 per month	7	14
1 - 2 per month	9	18
1 per week	7	14
2 - 3 times per week	2	4
Not answered	2	4
Masturbation		
Not at all	32	64
< 1 per month	5	10
1 - 2 per month	8	16
1 per week	2	4
2 - 3 times per week	1	2
Not answered	2	4
Kissing/Petting		
Not at all	8	16
< 1 per month	4	8
1 - 2 per month	4	8
1 per week	3	6
2 - 3 times per week	8	16
4 - 6 times per week	3	6
1 per day	9	18
2 - 3 per day	4	8
4 or more time per day	5	10
Not answered	2	4
Sexual Fantasies		
Not at all	20	40
< 1 per month	4	8
1 - 2 per month	9	18
1 per week	4	8
2 - 3 times per week	4	8
4 - 6 times per week	1	2
1 per day	1	2
2 - 3 per day	2	4
Not answered	5	10

percent had fantasies once per day, 4 percent had fantasies 2-3 times per day, and 10 percent did not respond to the question.

One question included in the T-score evaluation, but not included in the same structured format as the other components of sexual drive, was ideal frequency of sexual activity. Participants were asked to fill in the blank of their preference for sexual activity. A frequency distribution of this question showed that seven (14%) prefered no sexual activity, one (2%) wanted sexual activity once per month, and six (12%) wanted sexual activity less than once per month. Eleven (22%) wanted sexual activity 2-3 times per week, while twenty (40%) said ideally, once per week. Three (6%) wanted sexual activity 3-4 times per week. One wanted sexual activity more than once per day, and one felt he wanted sex "whenever the mood strikes." An outline of these findings are presented in Table 5.

The mean for the T-scores of the attitude subtest was 37.5, with a S.D. of 7.9. Only two responded above the 50th percentile range, while thirty-seven fell below. Eleven did not complete this section of the questionnaire. The attitude subtest was presented in the form of 30 statements that questioned their views about sexual matters. Their responses on a five-point Likert scale helped to determine varying degrees of liberalism versus conservatism. This subtest was incorporated only to help gain insight as to the type of sample responding to the questionnaire and whether the overlying responses were coming from a more conservative or liberal class of individuals. It was apparent that this group tended to be more conservative.

The body image subtest consisted of 15 items and responses were made on a Likert scale that indicated the level of agreement with statements concerning the appreciation of the physical aspects of one's body. The mean for T-scores of body image was 40.4, with a S.D. of 7.9. Six scored at the 50th percentile range or above,

Table 5

Ideal Frequency of Sexual Activity

Ideal Frequency	N	%
None	7	14
Once / month	1	2
> Once / month	6	12
Once / week	20	40
2 - 3 / week	11	22
3 - 4 / week	3	6
> Once / day	1	2
Other	1	2

while forty fell below mid range. Three had no response to this section of the questionnaire.

The sexual satisfaction subtest included 10 true/false statements designed to target sexual satisfaction for self and with partner. The T-scores indicated a mean of 46.0 and a S.D. of 8.9. Fifteen scored at the 50th percentile margin or above, while twenty-one scored below mid range. Fourteen did not complete this section primarily because they were not sexually active at the time of completing the questionnaire.

T-scores were obtained for the rating of overall satisfaction with the sexual relationship. The mean was 49.4, with a S.D. of 12.0. While five did not complete this section, twenty-nine scored below the 50th percentile margin and sixteen were either at the 50th percentile range or above. Coding of the responses to overall satisfaction with the sexual relationship fell into a range of "could not be worse" to "could not be better." Responses are listed in Table 6. While fourteen (28%) said their satisfaction with their relationship was either "good" or better, thirty (60%) men rated their sexual relationship as being "somewhat adequate" or below. Four (8%) did not complete this section of the questionnaire and two (4%) found this question "not applicable" since they were not in a relationship at the time of completing the questionnaire.

Interview Data

An outline of the questions asked during the interview process are provided in Appendix C. A total of 10 questions were asked in a semi-structured format. The responses to the questions were scaled down to fit for quantitative analysis and the findings will be presented in this chapter. As well, all of the content obtained from taping the interviews was qualitatively organized into categories based on the frequency of "like" or similar responses. The responses that emerged into some

Table 6

Satisfaction with Sexual Relationship

Level of Satisfaction	N	%
Could not be worse	5	10
Poor	12	24
Highly inadequate	2	4
Somewhat inadequate	8	16
Somewhat adequate	3	6
Good	4	8
Above average	1	2
Excellent	6	12
Could not be better	3	6
Not done	4	8
N/A	2	4

interesting patterns facilitated the discussion of the analysis and will be presented later in Chapter 5.

When asked about their knowledge of sexuality information at the time of diagnosis of prostate cancer and, specifically, of the impact of treatment on sexual function, twenty-three (46%) said yes to having received some form of information prior to coming to the cancer facility. Twenty-seven (54%), however, said that they did not receive any information prior to their first consultation at the cancer facility. Since all of the men in this sample had pre-treatment discussion concerning their existing erectile status and sexual functioning prior to treatment at the cancer centre, this question assessed for any prior knowledge before coming to the cancer facility for treatment. A summary of findings identifying where the source of information was obtained is presented in Appendix G.

In order to determine pre- and post-treatment erectile status and sexual functioning, each individual was asked to reflect back to the time prior to treatment and provide a verbal response (yes or no) as to whether he was sexually active and/or able to have erections. Although pre-treatment functioning was documented in each individual's chart, verbal response was important as a secondary method of verification. It was interesting to note that the recall bias was low, with only a few discrepancies noted and clarified during the interview process. Each individual was then asked about his current level of sexual functioning and erectile status, and of the ways in which their functioning had changed over time. Table 7 provides the data on pre- and post-erectile status and sexual activity, and change in sexual functioning and erectile status.

Forty-one (82%) were able to achieve an erection sufficient for penetration, while four (8%) were unable to achieve an erection pre-treatment. Five (10%) noticed some form of change in erectile status prior to treatment. Usually this change

Table 7

Sexual Functioning and Erectile Status

Category of Function	Function Pre-treatment	Function Post-treatment	Change in Function Post-treatment
Erectile Status	Yes 41 (82%)*	Yes 7(14%)	Yes 40(80%)
	No 4 (8%)	No 13(26%)**	No 6(12%)
	Decreased 5(10%)+	Decreased 30 (60%)#	N/A 4(8%)tt
Sexual Activity@	Yes 40(80%)	Yes 19(38%)	Yes 41(82%)
	No 9(18%)ΔΔ	No 25(50%)	No 4(8%)
	Decreased 1(2%)⧗	Decreased 6 (12%)	N/A 5(10%)Δ

@ Denotes sexual relations primarily intercourse with partner.
* Erection sufficient for penetration.
+ Denotes change in erectile status pre-treatment.
ΔΔ Denotes no sexual activity or not having a partner.
** Inability to have erection.
# Morning stiffness only or some rigidity insufficient for penetration.
tt Not applicable due to no erectile function pre-treatment.
⧗ Decrease in level of sexual activity pre-treatment.
Δ Not applicable due to no sexual activity pre-treatment or no partner.

would be described as experiencing some erectile weakness, although they were still able to have penetration. Seven (14%) were able to achieve an erection sufficient for penetration post-treatment, while 13 (26%) were entirely unable to achieve any form of penile rigidity. Thirty (60%) noted a decrease in their ability to achieve an erection by reporting some morning stiffness only, penile rigidity insufficient for penetration, decreased control of erection, and loss of spontaneous erection. Seven of the thirty men who reported a decrease in erectile ability were on some form of erectile aid at the time of the interview.

An overall change in erectile status following treatment was reported by forty (80%) men. Six (12%) maintained no change in erectile status post-treatment. Four (8%) were not considered evaluable due to their non-erectile status pre-treatment.

Forty (80%) men were sexually active prior to receiving treatment. Nine (18%) did not engage in any form of sexual activity. One individual noticed a decrease in level of sexual function prior to treatment. Sexual activity was reported by nineteen (38%) men following treatment, while twenty-five (50%) men could not engage in sexual activity. Six (12%) men noticed a decrease in sexual activity following treatment.

Overall, forty-one (82%) experienced a change in sexual function, primarily due to the impact of decreasing erectile status. Four (8%) were able to maintain their pre-treatment level of sexual function. Five (10%) were considered "not applicable" in the assessment of change in sexual functioning since their pre-treatment status.

Table 8 summarizes the frequency distributions from coded responses for the remaining variables in the interview portion of data collection. Although a quantitative analysis limits much of the descriptive content obtained from the interviews, it was useful when gaining an overall perspective and the potential impact

Table 8

Interview Data

Variable	Response	f	%
Change in body image	Yes	37	74
	No	13	26
Change in image of self	Yes	42	84
	No	8	16
Pre-treatment			
Communication with spouse	Yes	30	60
	No	17	34
	N/A	3	6
Post-treatment			
Communication with spouse	Improved	12	24
	No change	31	62
	Decreased	4	8
	N/A	3	6
Emotional			
Needs	Yes	43	86
	No	7	14
Physical Sexual			
Needs	Yes	17	34
	No	33	66
Age Affects			
Sexuality	Yes	40	80
	No	10	20
Developmental Issues	Financial security	1	2
	Health concerns	6	12
	Importance of family	2	4
	Death of self	5	10
	Multiple responses	20	40
	No response	16	32
Sexual Functioning	Physical	36	72
	Non-physical	13	26
	No response	1	2

of treatment on the individual. The more descriptive nature of the issues presented by the men will be provided in the discussion in Chapter 5.

When the researcher asked whether or not they thought that since having had treatment they had changed the way they felt physically about their body, 74 percent thought that they had been affected by the treatment. Twenty-six percent felt that treatment had no impact on body image. When asked whether or not they thought since having had treatment they had changed the way they felt inside, 84 percent felt that treatment had affected their image of self. Sixteen percent felt that treatment did not affect their image of self.

The question of ability to communicate sexual feelings to spouse was asked. Pre-treatment communication of sexual feelings was assessed retrospectively and each individual was then asked whether the level of sexual communication improved, decreased, or remained the same, following treatment. Sixty percent of men indicated that they could talk to their spouses about sexual feelings, while 34 percent could not communicate at an intimate level with their spouses. Six percent were considered "not applicable" due to being without a significant other at the time of the interview. As to whether treatment had some impact on the ability to communicate sexual feelings, 24 percent felt that their communication improved since treatment. Sixty-two percent experienced "no change" in the level of communication post-treatment, and 8 percent felt the communication decreased following treatment. Six percent remained "not applicable."

The question of "needs" presented to the men was: "If you were able to think back since treatment, what would you identify as being the most important needs you had during treatment and up until now?" The needs identified by men were viewed as being emotional or physical in nature. Eighty-six percent of men felt they had emotional needs since having experienced treatment, while fourteen percent did

not express any emotional needs. Sixty-six percent expressed needs of a physical nature and thirty-four percent did not identify any existing physical needs.

The topic of age was presented in the next question by asking, "Do you think being the age you are has anything to do with the way you feel about your sexuality?" Eighty percent of the men interviewed felt that increasing age had some effect on their sexuality and sexual relationship. Twenty percent felt that their current level of sexuality and sexual relationship was not any different than before. Although the majority felt that age had some influence on sexuality, their responses to the question did not discount their desire for adequate sexual function.

In association with age, men were asked whether or not they felt there were any other issues of importance to them now at their age as compared to twenty years ago. Even though there was the potential risk for a wide variety of responses, some interesting and similar findings were noted among the men. In the single category responses, one individual worried about financial security, six (12%) had concerns for future health, two (4%) identified the importance of family, and five (10%) felt death moving closer. In the multiple responses category, twenty (40%) identified more than one of the following issues: adjusting to retirement, concern for financial security, health concerns for self, importance of family, impending death of self and others, and having to eventually give up personal possessions. Sixteen (32%) could not spontaneously identify any issues at the time they were interviewed.

The last question presented in the interview asked each individual to make a choice as to whether there was a preference for wanting a close, intimate, non-physical relationship with the significant other, or a preference for wanting a physical relationship where one was able to perform. Seventy-two percent desired a physical relationship, while 26 percent preferred a close, non-physical relationship with the

significant other. One individual was not able to comfortably decide what his preference would be.

Relational Analysis

Correlation is a valuable statistical technique commonly used in a great deal of medical research (Coldeway, 1989). Pearson's coefficient of correlation was used on all of the data to examine relationships among the responses from the sample as a whole. The relationships considered to be significant for answering the questions in this thesis will be commented on.

The demographic correlations are presented in Table 9. There was a positive correlation between age and employment status ($r_{xy} = .60$ $p < .01$) and this was not surprising since the majority of those in the sample fell into the 68 years group and were also retired. The variable representing age and the T-scores representing sexual drive were negatively correlated ($r_{xy} = -.30$, $p < .05$), as was the employment variable and the T-scores representing sexual drive ($r_{xy} = -.45$, $p < .01$). When examining the overall low scores in sexual drive following treatment, one could predict that with increasing age and retirement, sexual drive would continue to decline following treatment. Unfortunately, there is no way to know the direct impact of age and employment status on sexual drive before treatment since these circumstances were not tested.

In this sample of men, marital status was significantly related to the variable representing attitudes ($r_{xy} = .44$, $p < .01$). Therefore, the majority of men were married and were more likely to have been conservative. Religion was negatively correlated with net income ($r_{xy} = -.40$, $p < .01$) and positively correlated to change in erectile status following treatment ($r_{xy} = .28$, $p < .05$). Since most of the men in the sample classified themselves as being Protestant, it is likely that they did not all fall

Table 9

Correlations of Demographics among Variables

Variables	Age	Employment Status	Level of Education	Religion	Marital Status
Employment Status	.60**	----	----	----	----
T-score drive	-.30*	-.45**	----	----	----
T-score sexual satisfaction	----	----	-.38*	----	----
T-score overall sexual satisfaction	----	----	-.33*	----	----
Post-treatment sexual activity	----	----	.30*	----	----
T-score attitudes	----	----	----	----	.44**
Satisfaction with sexual relationship	----	----	.42**	----	----
Net income	----	----	----	-.40**	----
Change in erectile status	----	----	----	.28*	----

* $p < .05$
** $p < .01$

into the most commonly reported mid-income level. Those that did report being Protestant, however, likely experienced a change in erectile status following treatment.

Level of education was the demographic variable that had the greatest number of correlational significance. Level of education was positively correlated ($r_{xy} = .30$, $p < .05$) with post-treatment change in sexual activity. Level of education was also positively correlated ($r_{xy} = .42$, $p < .01$) with satisfaction with sexual relationship. Data on the level of education suggested that the majority of men maintained a high school standing. The common response to post-treatment change in sexual activity was that it had decreased with an overall adequate or less level of satisfaction with sexual relationship. Therefore, treatment had the greatest impact on the level of sexual activity and satisfaction with sexual relationship in those with high school standing.

Level of education, however, correlated negatively with the T-scores for sexual satisfaction ($r_{xy} = -.38$, $p < .05$) and negatively with the T-scores for overall sexual satisfaction ($r_{xy} = -.33$, $p < .05$). Since the mean T-scores for both fell below the 50th percentile range, one would anticipate that those individuals with low educational levels would have been inclined to have reported higher T-scores for sexual satisfaction and overall satisfaction with sexual relationship.

Table 10 summarizes of all the significant relationships between variables for the entire sample of men. The sexual drive variable represents the frequency in which one engaged in intercourse, masturbation, kissing/petting, and sexual fantasies. The mean T-score obtained from the drive variable was 40.2, which places the majority of men under the 50th percentile range of functioning. The drive variable showed a positive relationship to overall declining rates of sexual satisfaction ($r_{xy} = .37$, $p < .05$) and post-treatment change in erectile ability ($r_{xy} = .31$, $p < .05$).

Table 10

Correlations of Data among Interview and Questionnaire Variables

Variable	Drive	Sexual Satisfaction	Pre-treament Sexual Activity	Change in Erectile Status	Change in Image of Self	Post-treatment Communication With Spouse	Chronic Post-treatment Medical Problems
Overall	.37*	.37*	----	----	----	----	----
Post-treatment evectile ability	.31*	-.36*	----	----	----	----	----
Change in sexual activity	----	----	.68**	.69**	.32*	----	----
Ideal frequency of sexual intercourse	----	----	----	-.31*	----	----	.33*
Pre-treatment communicaition with spouse	----	-.33**	.35*	----	----	----	----
Pre-treatment erectile ability	----	----	.33*	----	----	----	----
Change in erectile status	----	----	.36*	----	----	----	----
Physical sexual needs	----	----	----	----	----	.29*	.37**
Physical vs non-physical functioning	----	----	----	----	----	----	.53**
Change in body image	-.29*	----	----	----	----	----	----

* < .05
** < .01

The drive variable was negatively correlated with the variable representing change in body image (r_{xy} = -.29, $p < .05$). There was a significant number of men who reported that treatment had some effect on body image. Based on this relationship, as the rates of body image were to increase, the level of drive would decline.

A decline in sexual satisfaction had a positive correlation with an adequate or below overall satisfaction with sexual relationship (r_{xy} = .37, $p < .05$) expressed by the majority of men. The variable representing sexual satisfaction negatively correlated with pre-treatment communication with spouse (r_{xy} = -.33, $p < .01$). Sexual satisfaction was also negatively correlated with the results of post-treatment erectile status (r_{xy} = -.36, $p < .05$).

It is not surprising that the high rates of sexual activity reported pre-treatment positively correlate with the apparent change in sexual activity observed post-treatment (r_{xy} = .68, $p < .01$). Also, there were positive correlational relationships between pre-treatment level of sexual activity and intimate pre-treatment communication (r_{xy} = .35, $p < .05$) and pre-treatment sexual activity and rates of pre-treatment erectile ability (r_{xy} = .33, $p < .05$). Pre-treatment sexual activity corresponds positively to the noted impact of treatment on changing erectile status post-treatment (r_{xy} = .36, $p < .05$). Similarly, the change in erectile status correlates with the change in sexual activity observed post-treatment (r_{xy} = .69, $p < .01$). And finally, the changes in sexual activity observed following treatment correlated with the impact of treatment on image of self (r_{xy} = .32, $p < .05$).

The change in erectile status reported post-treatment had a negative relationship with reported rates of ideal frequency of sexual intercourse (r_{xy} = -.31, $p < .05$). The majority of responses to ideal frequency of sexual intercourse indicated a per weekly preference for sexual intercourse. As a greater

number of men report a decline with erectile status following treatment, this could indicate that the per weekly preference for sexual intercourse would become less frequent.

And finally, it is interesting to note that the low incidence of reported chronic post-treatment medical problems had some strong positive correlations with the findings of a few other variables. There was a significant relationship between the low incidence of reported chronic post-treatment medical problems and the preference for the ideal per weekly frequency of sexual intercourse ($r_{xy} = .33$, $p < .05$). The low number of those expressing physical sexual needs in the needs assessment was positively correlated with the low incidence of reported chronic post-treatment medical problems ($r_{xy} = .37$, $p < .05$). The preference for a physical relationship with spouse was significant ($r_{xy} = .53$, $p < .01$) with the low incidence of reported chronic post-treatment medical problems.

Mean Differences

In order to examine the question of whether or not radiation treatment had an effect on body image and image of self, t-test analyses were performed on responses to Question 5 of the interview against the other responses in the data. The responses to change in body image were coded into "yes" or "no" categories. One relationship between body image and sexual drive was significant ($p < .04$). This finding corresponded with the relationship observed between body image and sexual drive in the relational analysis. Another relationship between body image and pre-treatment erectile ability appeared significant ($p < .05$). An explanation for this finding may account for the high pre-treatment erectile status and the observed impact of radiation treatment on those who reported changes in body image following treatment.

Similarly, the responses to a change in image of self was coded into "yes" or "no" categories. Changes in image of self compared significantly to responses which indicated a change in the level of sexual activity ($p < .02$). Table 11 presents a summary of these findings.

While acknowledging that the sample size was small, one question raised in this thesis was whether or not there were existing differences between those individuals who received radiation alone ($n = 23$) versus those individuals who received a combination of radiation and implant ($n = 27$). Pearson's coefficient of correlation was used initially to determine whether or not any significant relationships existed between variables when the groups were examined individually. Although the possibility of some existing correlations were evident, further testing seemed appropriate to determine which of the correlations were meaningful to the small groups; t-tests were computed on those significant variables having been coded into"yes" or "no" categories, and one way analysis of variance (ANOVA) and Scheffe's test were used to examine the actual mean differences.

Presented in Table 12 are the correlations found to be significant in the group of individuals receiving radiation alone and those who received implant and radiation. The impact of treatment on body image and post-treatment communication with spouse appeared to be affected in the radiation alone group ($r_{xy} = .52$, $p < .05$). As well, the post-treatment changes impacting on body image correlated with the reported adequate or below level of sexual satisfaction ($r_{xy} = .62$, $p < .01$), and an inadequate overall satisfaction with sexual relationship ($r_{xy} = -.64$, $p < .01$) in the radiation alone group. The low rates of sexual satisfaction among those in the radiation alone group were positively correlated with the adequate or less responses to overall satisfaction with sexual relationship ($r_{xy} = .95$, $p < .01$).

Table 11

Results of t-tests Analysis on Significant Variables

t-test Comparison of Variables Body Image and Pre-treatment Erectile Ability

Variable	n	Mean	SD	t-value	df	p
Pre-treatment Erectile Ability						
Group 1 (affected)	37	1.35	0.72	1.95	47.4	0.05
Group 2 (not affected)	13	1.07	0.28			

t-test Comparison of Variables Image of Self and Change in Sexual Activity

Variable	n	Mean	SD	t-value	df	p
Change in Sexual Activity						
Group 1 (yes)	42	1.19	0.59	-2.37	48.0	0.02
Group 2 (no)	8	1.75	0.71			

t-test Comparison of Variables Body Image and Sexual Drive

Variable	n	Mean	SD	t-value	df	p
Group 1	35	41.2	6.2	2.08	46	0.04
Group 2	13	36.8	8.0			

Table 12

Correlations of Interview and Questionnaire Data Between Groups

Variable	Change in Body Image	Post-treatment Communication with Spouse	T-scores Sexual Satisfaction
T-scores sexual satisfaction	RT .62 **	----	----
Change in body image	----	RT .52*	----
T-score overall satisfaction with sexual relationship	RT -.64**	----	RT .95**
Change in erectile status	----	RT -.54**	----
Pre-treatment communication with spouse	----	RT .70**	----

RT = Radiation alone group
RT/IMP = Radiation and implant group
* < .05
** < .01

The ability to maintain post-treatment communication with spouse among those in the radiation group alone corresponds positively with pre-treatment communication with spouse ($r_{xy} = .70$, $p < .01$). Although there was a positive correlation between post-treatment communication with spouse and the post-treatment change in body image in the radiation alone group ($r_{xy} = .52$, $p < .05$), there was a negative correlation observed between post-treatment communication with spouse and the post-treatment change in erectile status in the same group ($r_{xy} = -.54$, $p < .01$).

The t-test analysis confirmed the significance between change in body image and sexual satisfaction ($p< .05$). As well, there were significant mean differences between change in body image and overall satisfaction with sexual relationship ($p < .001$). One-way analysis of variance including Scheffe's test was computed for multiple response variables showing ($r_{xy} = -.64$ to $.95$). Tables 13-16 show the relationships significantly different as they were observed in the radiation alone group: The T-scores for body image and post-treatment communication with spouse ($p < .01$); T-scores of overall satisfaction with sexual relationship and satisfaction with sexual relationship ($p < .001$); post-treatment change in erectile status and post-treatment communication with spouse ($p < .001$); and pre-treatment communication with spouse and post-treatment communication with spouse ($p < .003$). The implications associated with these findings will be discussed later in Chapter 5.

Further contingency analysis was used to compare relationships of response frequencies obtained from the general data collected on the entire sample. A crosstabulation analysis of the significant responses occurring among combinations of two variables was then calculated. Tables 17 through 20 presents the results of the

Table 13

Results of ANOVA for Body Image by Communication with Spouse Post-treatment (Radiation Group)

Source	DF	SS	MS	F	p
Between Groups	3	640.27	213.42	4.99	0.01
Within Groups	16	684.47	42.78		
Total	19	1,324.74			

Results of the Scheffe Test

			1	2	3
1.	Some chang	37.68			
2.	Improved	38.17			
3.	Decreased	42.00			
4.	N/A	63.50	*	*	

* Denotes paris of groups significantly different at $p < .05$ level.

Table 14

Results of ANOVA for Overall Satisfaction with Sexual Relationship by Satisfaction with Sexual Relationship (Radiation Group)

Source	DF	SS	MS	F	p
Between Groups	5	1,000.69	200.14	889.50	0
Within Groups	10	2.25	0.23		
Total	15	1,002.94			

Results of the Scheffe Test

			1	2	3	4	5
1.	Could Not Be Worse	35.50					
2.	Poor	42.50	*				
3.	Somewhat Inadequate	45.25	*	*			
4.	Somewhat Adequate	50.00	*	*	*		
5.	Above Average	52.50	*	*	*	*	
6.	Good	62.50	*	*	*	*	*

* Denotes paris of groups significantly different at $p < .05$ level.

Table 15

Results of ANOVA for Change in Erectile Status by Communication with Spouse Post-treatment (Radiation Group)

Source	DF	SS	MS	F	p
Between Groups	3	6.38	2.13	8.10	0.001
Within Groups	18	4.71	0.26		
Total	21	11.09			

Results of the Scheffe Test

			1	2	3
1.	Decreased	1.00			
2.	N/A	1.00			
3.	Some Change	1.14			
4.	Improved	2.50	*	*	*

* Denotes paris of groups significantly different at $p < .05$ level.

Table 16

Results of ANOVA for Pre-treatment Communication with Spouse by Post-treatment Communication with Spouse (Radiation Group)

Source	DF	SS	MS	F	p
Between Groups	3	6.02	2.01	6.66	0.003
Within Groups	18	5.43	0.30		
Total	21	11.45			

Results of the Scheffe Test

			1	2
1.	Improved	1.00		
2.	Some Change	1.43		
3.	Decreased	2.00		
4.	N/A	3.00	*	*

* Denotes paris of groups significantly different at $p < .05$ level.

Table 17

Crosstabulation of Ideal Frequency of Sexual Intercourse by Chronic Post-treatment Medical Problems

Ideal Frequency	None	Angina	Heart Condition	Multiple	Not Sure
None	7 (16%)	-	-	-	-
Once per Month	1 (2%)	-	-	-	-
> Once per Month	6 (13%)	-	-	-	-
Once per Week	19 (42%)	-	1 (100%)	-	-
2 - 3 time per Week	10 (22%)	-	-	1 (100%)	-
3 - 4 times per Week	1 (2%)	1 (50%)	-	-	1 (100%)
> Once per day	1 (2%)	-	-	-	-
Other	-	1 (50%)	-	-	-
Total	45	2	1	1	1

chi-square = 54.24, df = 28, p = .002

Table 18

Crosstabulation of Ideal Frequency of Intercourse by T-score Drive

Ideal Frequency	0 - 35	36 - 45	46 - 55	55 +
None	4 (25%)	1 (4%)	-	2 (67%)
Once per Month	1 (6%)	-	-	-
> Once per Month	5 (31%)	1 (4%)	-	-
Once per Week	4 (25%)	14 (61%)	1 (12%)	1 (33%)
2 - 3 time per Week	1 (6%)	4 (17%)	6 (75%)	-
3 - 4 times per Week	1 (6%)	1 (4%)	1 (12%)	-
> Once per day	-	1 (4%)	-	-
Other	-	1 (4%)	-	-
Total	16	23	8	3

chi-square = 40.53, df = 21, p = .006

Table 19

Crosstabulation of Ideal Frequency of Sexual Intercourse by Change in Erectile Status

Ideal Frequency	Yes	No	N/A
None	3 (7%)	1 (17%)	3 (75%)
Once per Month	-	1 (17%)	-
> Once per Month	5 (13%)	1 (17%)	-
Once per Week	18 (45%)	2 (33%)	-
2 - 3 time per Week	11 (28%)	-	-
3 - 4 times per Week	2 (5%)	1 (17%)	-
> Once per day	-	-	1 (25%)
Other	1 (3%)	-	-
Total	40	6	4

chi-square = 37.66, df = 14, p = .0005

Table 20

Crosstabulation of Ideal Frequency of Sexual Intercourse by Change in Sexual Activity

Ideal Frequency	Yes	No	N/A
None	3 (7%)	-	4 (80%)
Once per Month	1 (2%)	-	-
> Once per Month	5 (12%)	1 (25%)	-
Once per Week	19 (46%)	1 (25%)	-
2 - 3 time per Week	9 (23%)	2 (50%)	-
3 - 4 times per Week	3 (7%)	-	-
> Once per day	-	-	1 (20%)
Other	1 (2%)	-	-
Total	41	4	5

chi-square = 33.84, df = 14, p = .002

chi-square analyses for the categories significant with ideal frequency of sexual intercourse.

The results of ideal frequency of sexual intercourse by chronic post-treatment medical problems yielded a significant chi-square of 54.24, p = .002. Forty-two percent of men who reported having no chronic post-treatment medical problems desired a once per week frequency of sexual intercourse. Of the few who reported having some form of chronic post-treatment medical problems, the ideal frequency rates remained at a once per week or on a more frequent basis.

Ideal frequency of sexual intercourse by T-scores of the drive category were significant with a chi-square of 40.53, p = .006. The majority of men with drive T-scores of 55 or less (an average score or below) expressed a desire for sexual intercourse on a once per week frequency. In fact, sixty-one percent who preferred sexual intercourse on a once per week frequency had drive T-scores in the 36-45 range (Table 18).

Tables 19 and 20 show the results of the chi-square analysis for ideal frequency of sexual intercourse by change in erectile status (37.66, p = .0005), and by change in sexual activity (33.84, p=.002). The majority of men who experienced a change in erectile status and change in sexual activity reported ideal frequency rates of once per week or more. Thirty-three percent of men who did not have any change in erectile ability wanted a once per week frequency of sexual intercourse. Fifty percent of men with no change in sexual activity wanted sexual intercourse 2-3 times per week. The "not applicable" category represented men without a significant other. In Table 19, seventy-five percent of men without a partner did not want any sexual intercourse post-treatment. In Table 20, eighty percent of men did not want any sexual intercourse post-treatment.

Further chi-square analysis with the drive variable is presented in Table 21. A crosstabulation of change in sexual activity by T-scores of drive were significant with chi-square of 16.61, p = .01. Sixty-nine percent of men who experienced a change in sexual activity yielded the lowest (0-35) drive scores, while ninety-one percent with a change in sexual activity scored below average, in the 35-45 range. There were only three individuals who scored in the 56+ range; one individual (33%) reported change in sexual activity, and two individuals (66%) experienced decreased sexual activity. There were no findings in the 56+ category from those who did not experience any change in sexual activity.

Table 22 presents a crosstabulation of post-treatment erectile ability by the T-scores representing drive (chi-square = 13.44, p = .04). Not one individual scored in the 56+ range after experiencing a change in erectile ability. Thirty-one percent who experienced a permanent change in erectile ability scored in the 0-35 range. Sixty-seven percent of men who did not experience any change in erectile ability scored in the 56+ range. Seventy-eight percent of men with decreased erectile ability remained below average with scores in the 36-45 range.

Table 23 offers the results of the chi-square analysis for the T-scores of sexual satisfaction by post-treatment erectile ability. The results yielded a significant chi square of 15.02, p = .02. Seventy-one percent of men who scored in the 56+ T-score category of sexual satisfaction reported a decreased erectile ability. Sixty-nine percent who scored in the 56+ category did not experience any change in erectile ability. The majority (50%) with decreased erectile ability reported T-scores for sexual satisfaction in the (36-45) below average range.

Table 21

Crosstabulation of Change in Sexual Activity by Drive

Sexual Activity	0 - 35	36 - 45	46 - 55	56 +
Yes	11 (69%)	21 (91%)	8 (100%)	1 (33%)
No	3 (19%)	1 (4%)	-	-
Decreased	2 (12%)	1 (4%)	-	2 (66%)
Total	16	23	8	3

chi-square = 16.61, df = 6, p = .01

Table 22

Crosstabulation of Post-treatment Erectile Ability by Drive

Erectile Ability	0 - 35	36 - 45	46 - 55	56 +
Yes	5 (31%)	1 (4%)	1 (12.5%)	-
No	6 (37%)	4 (17%)	1 (12.5%)	2 (67%)
Decreased	5 (31%)	18 (78%)	6 (75%)	1 (33%)
Total	16	23	8	3

chi-square = 13.44, df = 6, p = .04

Table 23

Crosstabulation of Sexual Satisfaction by Post-treatment Erectile Ability

Sexual Satisfaction	Yes	No	Decreased
0 - 35	-	-	2 (7%)
36 - 45	1 (14%)	3 (23%)	15 (50%)
46 - 55	1 (14%)	1 (8%)	8 (27%)
56+	5(71%)	9 (69%)	5 (17%)
Total	7	13	30

chi-square = 15.02, df = 6, p = .02

Summary

Based on the enormous amount of data collected, efforts were made to present a concise quantitative analysis of the data collected. Attempts were made, where possible, to include only those findings that directly pertained to the research question in the study. The significant findings reported in the analysis provided the necessary evidence to suggest that there was psychosexual morbidity among men who experienced radical radiation therapy. The findings that directly pertained to the research questions in concise form are as follows:

i) How do the psychosexual changes experienced by men affect their perceptions of body image and image of self? The majority of responses made by the men in this study indicated that treatment had an effect on body image and image of self. The changes noted in sexual drive and in sexual activity were the specific areas most significantly related to the changes in body image and image of self.

ii) How then do these changes affect the relationship dynamics between the patients and significant others? Since the variables most affected by the changes in body image and image of self are sexual drive and sexual activity, they represent to some degree "couple activities" and would therefore have a direct influence on the relationship dynamics between men and their partners.

iii) How do men prioritize their psychosexual needs following treatment? Of greatest significance was the high percentage of men who reported having emotional needs. Still prevalent but slightly less significant were those who reported having physical needs. (The specific types of needs most commonly found in both categories are discussed in Chapter 5.)

iv) What degree of social significance do the latter developmental stages of

aging have on expressed attitudes of men treated with radiation therapy for prostate cancer? The developmental issues raised by the men in this study support the findings reported by previous authors (Blum, 1990; Dobkin & Bradley,1991; Greenburg, 1984; Ofman, 1993, 1995). As well, the issues identified by the men in this study were similar to those identified in Cross's (1981) life cycle phase, and also delineated were the same marker events as the men who provided responses in the interviews. The "Mellowing/Life Review" phase of one's life cycle has a great deal of social significance as noted in the attitudes expressed by this age related group of men treated with radiation therapy for prostate cancer.

v) How much emphasis was placed on physiological needs and performance versus perceived psychological needs of men treated with radiation therapy for prostate cancer? In this study, there was a far greater preference for performance needs (72%) than psychological needs (26%). When given the choice, most men wanted a physical relationship as opposed to having a close, intimate non-physical relationship with their partner.

vi) How did the psychosexual changes differ between men treated with external beam radiation and those men treated with implant followed by a shorter course of external beam radiation therapy? The psychosexual changes reported by men associated with the variables representing body image and post-treatment sexual satisfaction differed in those treated with external beam radiation than in those treated with implant followed by a shorter course of external beam radiation therapy. The long-term effects experienced by men who had external beam radiation alone were

enough to cause more change in body image and resulted in a reported lower level of sexual satisfaction.

vii) Will men who received radiation therapy for prostate cancer experience negative sexual changes in their sexual relationships with their significant other? Men who underwent radiation therapy for prostate cancer experienced negative sexual changes in their sexual relationships with their significant others. The percentage of change in erectile ability (80%) and in sexual activity (82%) are complimentary with the findings noted by Helgason, Fredrikson, Adolfsson, and Steineck (1995). Although there were negative changes associated with sexual functioning, the level of sexual desire did not appear to be affected. These findings emphasized that it was the effects of treatment and not the altering sexual desire which forces changes in psychosexual well being.

viii) Will men who experienced radiation therapy for prostate cancer perceive their partners with psychosexual detachment as defined by their current level of sexual satisfaction? There was an overall decline in sexual satisfaction following radiation treatment. Two differents methods were incorporated when evaluating sexual satisfaction, and the data obtained with each method appeared cohesive. The results that established an obvious psychosexual detachment following treatment were observed between sexual satisfaction, post-treatment erectile status, and sexual drive.

Since the purpose of this study was to identify the psychosexual implications associated with radiation treatment in prostate cancer, the need for careful attention to the frequency of responses was essential. While determining relationships among the

variables is an important aspect for the analysis of data, the thoughts and feelings of the men were also a priority in this study. Chapter 5 will include a descriptive component to the discussion as it relates to the findings in the analysis, along with the implications associated with treatment, and concluding recommendations for future study.

CHAPTER FIVE: SUMMARY DISCUSSION, IMPLICATIONS, AND CONCLUSION

In response to the need emphasized in the literature for a better understanding of the quality of life issues and particularly psychosexuality, the researcher set out to identify the psychosexual implications associated with men who received radiation treatment for localized prostate cancer. With the use of a multidimensional approach and assessment in the biological, sociological, and psychological domains of functioning, the psychosexual experiences of men were explored with the intent of answering the research questions in this study. In the process of exploration, there was discovery of some interesting findings. These findings, along with the implications for practice and recommendations for future study, will be presented in this chapter.

Summary Discussion

Demographic Findings

When examining the demographic data, the sample of men in this study appear to be typical of the general population of men who are diagnosed with prostate cancer. The circumstances of being involved in a clinical trial that examined the administration of radiation therapy did not have an impact on the diversity of demographic findings. The range in age, from 52 to 78 years, is common in those who develop prostate cancer. The fact that the majority of men were married and retired was also consistent with this age group.

Both age and employment status were negatively correlated with the T-scores representing sexual drive. Sexual drive was measured following treatment and the outcome of responses in the sexual drive category were low. One explanation for the correlation between these variables was that the majority of men could have

experienced a decline in sexual drive following treatment simply because they were advancing in age and approaching retirement. It would, therefore, be difficult to comment on the degree of influence treatment had on the relationship between these variables, since pre-treatment assessment of drive was not measured, and, therefore, cannot be compared to the findings post-treatment. The relationships between advancing age, retirement, and reported low sexual drive, however, do have a significant association to the rates of impotence reported in this age group following radiation treatment. Impotence is certainly a factor in the assessment of sexual drive since impotence plays a role in reducing sexual drive.

The majority of men in the sample reported being married and this finding was significantly related to the overall conservative responses noted from the attitude subtest in the questionnaire. It was not surprising to see a positive correlation between the majority of responses with the two variables. Rather, it was more interesting to see a conservative group reporting on their sexuality since one would hypothesize that the more conservative individuals are less likely to express their sexuality than those who possess more liberal attitudes toward their sexuality.

The responses to the demographic question concerning religion were negatively correlated with the responses to net income and positively correlated to change in erectile status post-treatment. Since the majority of men were Protestant and the majority of men experienced a change in erectile status post-treatment, it is likely that those who experienced a change in erectile status were coincidently men who classified themselves as being Protestant. The overall range in reported net income levels was a positive indication that men from various socioeconomic backgrounds were well represented in the study. The significance of the negative correlation between religion and net income was that the majority of those who

reported being Protestant did not fall into one specific income level. They were distributed throughout the more commonly reported mid- income range.

Although the presence of correlations between religion and the aforementioned variables are important in the presentation of the demographic findings, none were thought to be of significant value to the overall findings of the study. Middle- to later-aged, white, Protestant men are commonly considered to be among the prostate cancer population in Canada. The second demographic question concerning religion asked men to report on the frequency of activity in their church organization. The fairly even spread of responses from "very active" to "never" and the varying degrees in between, was not as confounding as it could potentially have been if the number of responses leaned toward one extreme or the other.

As mentioned earlier in the analysis, level of education was the demographic variable that had the greatest correlational significance. Data on level of education suggested that the majority of men maintained a high school level of standing. The commonly reported mid-range level of education for men in this age group was not surprising since, years ago, most men would have achieved a high school education.

Level of education was positively correlated with post-treatment change in sexual activity and overall satisfaction with sexual relationship. The common response to post-treatment change in sexual activity was that it had decreased. Most men reported an adequate or decreased level of satisfaction with their sexual relationship. Therefore, treatment had the greatest impact on the change in sexual activity and satisfaction with sexual relationship. The majority of these men had a high school level of education.

Interestingly, level of education corresponded negatively with the T-scores for sexual satisfaction and the T-scores for sexual satisfaction with relationship. Since the mean T-scores for both variables fell below the 50th percentile range, one would

have anticipated that those individuals having reported an educational level different than high school standing were inclined to report lower T-scores for sexual satisfaction and overall satisfaction with sexual relationship.

The results of Singer et al. (1991) study also found the level of education to be significant to their study findings. Singer et al.(1991) showed how 50 men valued survival and sexual potency. They determined that the willingness to trade off survival for sexual potency was significantly related to level of education, but not to age, interest in sex, erectile ability, or frequency of sexual intercourse. Although the primary endpoints of their study differed from this study, level of education can certainly be perceived as an important factor to consider when exploring the sexual issues associated with middle- to later-aged men with prostate cancer.

Medical Chart Review Findings

A review of each individual's chart was conducted primarily to capture the data not otherwise collected with the other methods of instrumentation. Another purpose for a medical chart review was to ensure that those included in the sample were, in fact, a cohesive group since it was important to observe for any potentially confounding variables which could influence the results of the study.

The intent of the researcher was to include those individuals diagnosed with localized prostate cancer. This was not a difficult task since all of the patients involved in the clinical trial (which comprised this study's sample) were either staged with a B2 or C1 carcinoma of the prostate. It was not intentional to choose equal numbers of men who received either external beam radiation alone or a combination of implant and external beam radiation. The majority of men who fell into a minimum three-month follow-up period following treatment were all asked to participate.

Only a few individuals who were either on alternative methods of treatment due to persistent disease following radiation, or who were not considered approachable as per the attending radiation oncologist were excluded from the study. Hence, the outcome was that twenty-two men received external beam radiation alone, and twenty-eight men received implant and external beam radiation therapy. The apparent division of two groups was important only when wanting to assess for group differences and was not considered a factor in the whole group analysis since every individual received the treatment modality of radical radiation therapy.

The issue of being in a three-month to three-year follow-up period following treatment was to ensure that the men were able to provide an adequate assessment of their sexual function following treatment. Ideally, the further away from treatment they were, the better they were able to provide assessment of their functioning over the course of time. Although the number of months away from treatment varied (see Appendix E), many investigators have used a retrospective design, ranging from a few months to many years after treatment to collect data on post-treatment sexual dysfunction (Dobkin & Bradley, 1991).

When examining the impact of treatment on any aging population, there is concern for pre-existing health issues associated with the individual. The researcher must account for any pre-treatment medical conditions since illnesses and conditions, particularly of a chronic nature, could possibly have a direct impact on sexual health. Over half of the men in this sample did not have any condition, either documented in the medical chart, or reported by the individual.

Twenty-one men reported some form of chronic condition and the type of condition and medication intake was accounted for in the analysis. Despite the number of existing pre-treatment chronic conditions associated with some of the men, almost all of the entire sample had a documented performance status of 100 percent.

A documented performance status this high would certainly imply that all of the men were quite physically active. This observation was most likely in keeping with the clinical trial requirements that all men must be considered fit for surgery, since they were expected to undergo pelvic lymphadenectomy surgery prior to radiation treatment. In many cases, however, middle- to later-aged men are often healthy at the time of diagnosis for localized prostate cancer without any recognition of overt symptoms that would indicate that cancer exists.

It was equally important to document the incidence of post-treatment chronic conditions since the development of a chronic condition could certainly have an effect on the outcome of the study. If there were a large number of men who developed post-treatment chronic health problems, it would then be difficult to discern whether it was indeed the health problem or the effect of treatment which impinged on an individual's sexual functioning. Fortunately, only a small number of men experienced post-treatment chronic problems and, therefore, the issue of post-treatment conditions causes less of a impact on the results of the study.

After conducting a correlational analysis between the medical chart information and the rest of the data, it was the low incidence of reported post-treatment medical problems that had the most significance. In fact, there were three corresponding relationships observed. First, there was a positive correlation between the low incidence of reported chronic post-treatment medical problems and the majority of rather frequent (per weekly) responses to ideal frequency of sexual intercourse. Chi-square analysis later verified an existing relationship between ideal frequency of sexual intercourse and chronic post-treatment medical problems. Secondly, the low number of those expressing physical sexual needs in the needs assessment was positively correlated with the low incidence of reported chronic post-treatment medical problems. Lastly, the preference for a physical relationship with

spouse was significant to the low incidence of reported chronic post-treatment medical problems. Certainly all of these findings are indicative of a group of men who did not have to contend with a variety of health concerns. Surely, if the incidence of existing health conditions were higher, there would be less evidence of these relationships to suggest otherwise.

Body Image

The first research question posed in the study, was, "How do psychosexual changes experienced by men affect their perception of body image?" In the literature, there have been researchers who have hypothesized that disturbances in body image contribute to the development of sexual dysfunction (Derogatis, 1980; Ofman, 1993; Silberfarb, 1977, 1978; Wabrek & Wabrek, 1976). While some cite sexual body image and identity in men as frequent concerns of those with genitourinary cancers, all agree that disturbances in body image play a role in patients where the disease manifests itself in the sexual organs.

If, in fact, these statements are true, surely then the impact of treatment such as radiation therapy targeted to a sexual gland and its surrounding structures creates further disruption in an individual's perception of body image. Dobkin and Bradley (1991) imply that a loss of a sense of personal control over bodily functions may disturb patients to a point where they avoid intimate encounters. Side effects resulting from radiation treatment, such as bowel and bladder problems, certainly contribute to a loss of personal control over bodily functions. They could have an effect on patients to the point where they may indeed avoid intimate encounters.

In order to find the answers to the question concerning body image, it was important to initially establish what the consensus was to the issue of body image. Questionnaire responses to the section addressing body image revealed that the

majority of men fell below the 50th percentile range of normal functioning following treatment. When men were asked during the interview whether they had changed the way they felt physically about themselves since completing treatment, a large majority concluded that they had indeed been affected. They stated that an increase in the number of bowel movements per day with associated urgency, bleeding, mucous, and pain in the rectal area, generalized fatigue, and urinary urgency with related pain, were among the most commonly reported consequences of treatment.

When the responses to body image were negatively correlated with the responses given for sexual drive, it was apparent that the more body image was affected by the treatment, the further the level of drive would decline. Sexual drive included such intimate encounters as kissing/petting, intercourse, masturbation, and sexual fantasies. Therefore, a loss of personal control with changes in bowel and bladder functioning and generalized fatigue experienced following treatment likely contributed to the overall reported decline in sexual drive. The decline was characterized by the specific activities of intercourse, masturbation, kissing/petting, and sexual fantasies. When t-test analysis was further performed with these two variables, the results indicated a significance of $p < .04$, which supported the correlation between body image and sexual drive.

Another finding utilizing a t-test analysis was the significance ($p < .05$) between responses to body image and pre-treatment erectile ability. One explanation for this finding was the high rates of pre-treatment erectile status reported by the men and the observed impact of radiation treatment on those who reported changes in body image following treatment. Since most of the men reported a strong erectile status pre-treatment, the relationship between it and body image reflects the marked impact that treatment had on men. Consequently, this, in turn, has a contributing effect on the correlation observed between body image and sexual drive.

Image of Self

A similar question was posed in the study concerning image of self and specifically, how the psychosexual changes experienced by men affect their perceptions of image of self. As noted previously from the literature, there was substantial evidence to suggest that image of self was an important factor when exploring the issues regarding sexuality, cancer, and treatment (Dobkin & Bradley, 1991; Schain, 1994; Schover, 1992). During the interviews, the question was asked whether or not the men thought since having had treatment, they had changed the way they felt inside about themselves. The majority reported that the treatment experience had some effect on their image of self.

One of the primary concerns expressed by the men was the issue of sexual performance. Due to the impact of treatment on sexual functioning, they perceived more pressure to sexually perform for their partner. This was also evident in the positive correlation noted between change in self-image and change in sexual activity following treatment.

The other two most common categories of responses derived from the interview data, other than the concern for sexual performance, were anxiety related to whether the cancer had indeed been destroyed by treatment and the overall attempt to feel positive about the outcome of treatment. These types of issues have a direct psychosexual influence on the individual since negative emotional states such as anxiety, depression, anger, and despair, may indeed disrupt sexual activity (Dobkin & Bradley, 1991).

The t-test conducted on image of self and change in sexual activity following treatment showed a significant finding of $p < .02$. This finding was the only outcome when the variable representing image of self was tested with the other variables. Therefore, image of self and the three most common changes that were reported in the

image of self category had some impact on the post-treatment change in sexual activity.

Overall, the majority of responses reported by the men in this study indicated that the treatment experience had an impact on body image and image of self. The psychosexual changes noted in sexual drive and in sexual activity were the specific areas most significant to the changes in body image and image of self. Reduced sexual drive and changes in sexual activity were outcomes influenced by the effects of radiation treatment for prostate cancer. As well, sexual drive and sexual activity are, to some degree, couple activities, and they in fact have a direct influence on the relationship between men and their partners.

Communication With Spouse

If treatment plays a role in the changes observed in body image and image of self, it is also necessary to assess whether these changes in men are associated with their ability to communicate with spouse. Schain (1994) maintains that an individual's sexuality and sexual activities may be a major contributor to one's self-esteem and an important aspect of feeling alive and connected to another person. With this perspective in mind, the researcher examined the frequency of responses to the interview question concerning both pre- and post-treatment communication level, and observed for any existing correlations among the data.

The results of the distribution revealed that approximately 60 percent of men felt that they could communicate on an intimate level with their spouse before treatment. The most common expression of their ability to communicate was due to a solid and lengthy marriage to their spouse. A complimentary finding in the analysis was the positive correlation between pre-treatment sexual activity and pre-treatment communication with spouse.

Seventeen men representing less than half the sample did not communicate sexually with their partners. They did not think of themselves as being in a relationship which was conducively for the expression of sexual feelings. Five men blamed the lack of communication on their wives, and felt that their wives did not share the same interest for sex. Eight men simply said they did not discuss sex with their spouse.

Following treatment, 24 percent experienced an overall improvement in their communication. They related this improvement to the impact of treatment and their partner's sensitivity and compassion for their post-treatment needs. Sixty-two percent did not fluctuate from their pre-treatment status and, subsequently, did not experience any change in communication after treatment. Only eight percent of men felt that the communication with their partner decreased following treatment.

The brief exploration into the pre- and post-communication aspect between men and their significant others was beneficial when observing the openness that many had when they discussed their relationships. Certainly, a lack of a partner and men with more youthful and/or multiple marriage partners could present some variation in the findings. In this study, these factors were not so much the case.

This study was designed to assess men's perceptions of their relationship, and did not account for direct feedback from the significant other. Although, initially, there was some consideration for including input from the significant other, the researcher decided it was not the intent of this study. Ideally, however, to accomplish a thorough assessment of communication, one would have to include both perspectives that comprise the relationship and this is certainly one recommendation for future research.

Whether or not a man is able to communicate his sexual thoughts and feelings with his spouse could potentially have some serious psychosexual implications, and it

is essential that a researcher takes into consideration the communication parameters when conducting a sexual assessment. This is of particular importance when exploring and comparing communication issues to the other findings noted in the study. According to men, their ability to communicate about their sexuality with their partners did not appear to suffer any direct consequences, even though they experienced some change in body image and image of self after treatment.

Sexual Satisfaction

If there is a disruption in the flow of intimacy between partners, then a strain on the sexual relationship may be apparent. Many factors that can negatively influence and cause psychosexual detachment are not always directly obvious but may be observed indirectly, as in the way individuals express their sexual satisfaction.

In the questionnaire, sexual satisfaction was measured in two different ways: The sexual satisfaction subtest which consisted of ten true or false statements was designed to target sexual satisfaction with self and partner (mean of 46.0 indicated that the majority of men were satisfied below the 50th percentile range). Secondly, men were asked to rate their overall satisfaction with the sexual relationship. (Again, the mean was 49.4, with the majority indicating their sexual relationship as "somewhat adequate" or below.) Both assessments of sexual satisfaction were conducted in the follow-up period after all of the men had received radiation treatment. The average responses to both sections of the questionnaire appeared quite cohesive, with a positive correlation between both variables.

One interesting point for discussion was the negative correlation observed between sexual satisfaction and pre-treatment communication. Initially, there was a positive indication that the men felt they had a good sexual relationship with their

spouse, and one would have expected a positive correlation to exist. Rather, one way to interpret this finding after considering the low level of sexual satisfaction, would be to state that although men felt they were able to communicate their feelings to their partner, they did not feel an overall sense of sexual satisfaction with their relationship.

The results that established a psychosexual detachment following treatment were observed with sexual satisfaction, post-treatment erectile status, and sexual drive. A negative correlation reflected a low sexual satisfaction with the post-treatment erectile ability. Chi-square analysis further verified the existing relationship between sexual satifaction and post-treatment erectile ability with a significance of $p < .02$.

A positive correlation was noted between low sexual satisfaction and declining sexual drive. Both erectile ability and sexual drive would be considered physiologic repercussions of treatment. They were likely to have contributed to the reported low level of sexual satisfaction expressed by the men.

Sexual Functioning

The rationale for wanting to assess for the negative sexual changes experienced by men who received radiation treatment for prostate cancer was due to the varying yet significant impotence rates thought to be associated with radiation therapy. The evidence substantiated in the literature suggests that the issues pertaining to psychosexuality continue to be of concern for men, yet, they are not readily provided in the true scope of their existence . To date, there remains only one completed study by Helgason et al. (1995), that reported the real extent to which patients ($N = 53$) who are treated with radiation therapy experienced changes in sexual functioning, and how these changes affected quality of life.

In Helgason et al.'s (1995) study, 77 percent of men experienced diminished sexual desire after receiving radiation treatment for localized prostate cancer. As well, the erectile stiffness decreased in 77 percent. Before external beam radiation, 66 percent had an erection sufficient for intercourse and half of the men lost their ability after treatment. Of those who were able to retain orgasm after treatment, 47 percent reported a decreased orgasmic pleasure, and 91 percent a reduced ejaculation volume. In this population of men, 50 percent reported that their quality of life had decreased much or very much due to a decline in the erectile capacity following external beam radiation therapy.

It is important to note that the results of the Swedish group's findings were not known to the author at the time of the research proposal. In fact, their study surfaced during the author's data collection. There was not any intent to replicate their study, but only anticipation for what may be gained from this study. To the author's knowledge, an exploration into the psychosexual implications associated with radiation treatment in prostate cancer (this thesis) was to be the first of its kind.

Before any comparisons can be made, it was important to refer back to the frequencies reported in the analysis on sexual functioning. Forty-one (82%) were able to achieve an erection sufficient for penetration, while four (8%) were unable to achieve an erection pre-treatment. Five (10%) noticed some form of change in erectile status prior to treatment. Usually this change would be described as experiencing some erectile weakness, although they were still able to achieve penetration. Seven (14%) were able to achieve an erection sufficient for penetration post-treatment, while 13 (26%) were entirely unable to achieve any form of penile rigidity. Thirty (60%) noted a decrease in their ability to achieve an erection by reporting some morning stiffness only, penile rigidity insufficient for penetration, decreased control of erection, and loss of spontaneous erection. Seven of the thirty

men who reported a decrease in erectile ability were already on some form of erectile aid at the time of interview.

An overall change in erectile status following treatment was reported by forty (80%) men. Further contributing factors associated with change in erectile status were: pain or altering sensation of orgasm (reported by 10); blood in ejaculate (reported by 3); pain with ejaculation (reported by 4); decrease in amount of ejaculate (reported by 21); numbness in tip of penis (reported by 1); and pain in penis (reported by 1). Six men (12%) maintained no change in erectile status post-treatment. Four (8%) were not considered evaluable due to their non-erectile status pre-treatment.

Forty (80%) men were sexually active prior to receiving treatment. Nine (18%) did not engage in any form of sexual activity. One individual noticed a decrease in level of sexual function prior to treatment. Sexual function was maintained in nineteen (38%) following treatment, while twenty-five (50%) did not engage in sexual activity. Six (12%) noticed a decrease in sexual function following treatment.

Overall, forty-one (82%) experienced a change in sexual function primarily due to the impact of decreasing erectile status. Only seven men reported that they experienced a decrease in desire mentally while the vast majority were quoted as saying that they did not experience any change in sexual desire. The change in foreplay, stress with optimal sexual positioning, and reduced spontaneity of sex were other contributing factors for the changes in sexual activity. Four (8%) men were able to maintain their pre-treatment level of sexual function. Five (10%) were considered "not applicable" in the assessment of change in sexual functioning post-treatment, based on their pre-treatment status.

Pearson coefficient of correlation computed some very consistent relationships among pre- and post-treatment erectile status and pre- and post-

treatment sexual activity. These specific relationships were discussed in Chapter 4. As well, there were some interesting findings further noted in the contingency analysis. Ideal frequency of sexual intercourse was significantly related to post-treatment erectile status ($p < .0005$) and sexual activity ($p < .002$). Although the overall reported per weekly average for ideal sexual intercourse would be considered more than adequate, again, one would have to make further assumptions based on these findings. More likely than not the ideal was just that and, in reality, their post-treatment erectile and sexual activity status provided the real essence of their impaired functioning which was considerably less than their ideal.

The post-treatment erectile status and its significance to the less that desirable sexual satisfaction ($p < .02$) and declining sexual drive ($p < .04$) were certainly representative of the negative sexual changes experienced by men. As well, the post-treatment changes in sexual activity and the significance with sexual drive ($p < .01$) were also consistent with sexual morbidity.

Men who underwent radiation therapy for prostate cancer experienced negative sexual changes in their sexual relationship with their significant others. In this study, the percentage of change in erectile ability (80%) and in sexual activity (82%) are extremely consistent with the findings noted by Helgason et al. (1995), except that the Swedish group failed to account for any change in sexual activity. Although decreased orgasmic pleasure and a reduction in ejaculate were among the factors associated with a disruption in both erectile ability and sexual activity, this author provides a more detailed account of other relevant sexual findings. And finally, although there were negative changes associated with sexual functioning, the level of sexual desire did not appear to be affected. This further emphasizes that it is indeed the effects of treatment and not altering sexual desire that forces changes in psychosexual well being.

Prioritizing Psychosexual Needs

Among others in the literature, Fossa et al. (1992) raised the issue that there is an obvious reluctance in the medical community to deal with patients' sexual needs. One explanation for this reluctance is that it may be due to the lack of available psychosexual data in the literature which identifies what sexual needs are prioritized by patients who experience the repercussions of treatment. Based on the recurring theme noted in the literature, the men in this study were asked to identify what needs they felt they had since having had radiation treatment.

When the question of needs was asked during the course of the interviews, most of the men really had to think about this question. Since the format of the interview was structured to address many issues surrounding pyschosexuality, ideally a more thorough needs assessment would have to be incorporated to further explore this area of inquiry. There were enough responses, however, without any prompting from the researcher to allow for some interesting findings.

The issues raised by the men were easily coded into the two categories of emotional and physical needs. It was the high percentage of emotional needs that held the greatest priority in this sample of men in that eighty-six percent of men reported needs of an emotional nature. An overwhelming number of men felt that having supportive and caring health care professionals in the cancer facility played an integral role in their treatment experience. Secondly, men wanted someone they could turn to for counselling and for information regarding their sexual needs. Often, many felt a great sense of relief to hear that they were not alone with their sexual concerns and that others like them had experienced the same types of sexual problems following treatment. Finally, men wanted more general information about prostate cancer and felt that there was not enough sexuality discussion at the time that prostate cancer was diagnosed. This finding was also validated by approximately more than

half of the men in the sample who felt that they did not receive any sexuality information at the time they were diagnosed and prior to their first consultation at the cancer facility.

Sixty-four percent of men reported having physical needs, and the majority of these men wanted medical intervention for their reduced erectile status. Seven men were already on some form of erectile aid at the time of the interviews and they were included among the number of men who were actively seeking medical assistance for their physical sexual needs. The only other observation offered by four of the men was that foreplay was much more of an issue now than ever. This was due to their need for more stimulation in order to sexually perform for their partner. The researcher is confident that many more men would have shared this same feeling concerning foreplay if they had been asked directly. It was however, essential that the men provided a spontaneous response to this question without any influence from the researcher.

Developmental Stage

Common themes identified when reviewing the literature on sexuality and prostate cancer are developmental life stage issues. Various authors (Blum, 1990; Dobkin & Bradley, 1991; Greenburg, 1984; Ofman, 1993) have reported on a number of developmental issues which may influence sexual behavior among the age-related population of men who are diagnosed and treated for prostate cancer. Therefore, the question of to what degree of social significance does the latter developmental stages of aging have on the expressed attitudes of men specifically treated with radiation therapy for prostate cancer was incorporated into the study. As well, there was a desire to examine whether the reponses from men in this study were similar to those findings observed by other researchers.

During the interviews, men were asked whether they felt there were issues of importance to them now at their present age, as compared to twenty years ago. Again, this open-ended question warranted deep thought and, yet, a definitive answer with little or no prompting. Sixteen men were unable to readily provide what they felt was an appropriate answer to the question. The remainder of men in the study were able to respond with either a single issue or a variety of the following issues: concern for financial security; adjusting to retirement; concern for future health of self; importance of family; impending death of self and others (family and friends); and the relinquishing of personal possessions.

It was apparent that the developmental issues raised by the men in this study were similar to those findings reported in the literature. As well, the above issues are entirely compatible to those identified in Cross's (1981) life cycle phase which delineates the same marker events as noted in the men who provided responses in this study. The "Mellowing/Life Review" phase of one's life cycle has social significance when examining the attitudes expressed by this age-related group of men treated with radiation therapy for prostate cancer.

Physiological Needs And Performance Versus Psychological Needs

In this study, there was more emphasis placed on physiological needs and performance versus psychological needs of men treated with radiation therapy for prostate cancer. Approximately 72 percent of men indicated that they would prefer a physical relationship with their significant other. Fortunately, the majority of men were involved in a relationship during the time of conducting the interviews, and they were able to base their preference on their existing situations. As mentioned earlier in this chapter, there was a positive correlation between the low number of reported

post-treatment chronic medical conditions and the preference for wanting a physical relationship with spouse. Perhaps with the few reported post-treatment chronic conditions and their need to feel optimistic about the effectiveness of treatment, there was an underlying attempt at "normalcy" and to portray themselves as physical beings with a desire for maintaining the physical nature of their relationship.

It was evident that the majority of men who underwent radiation treatment for prostate cancer in this study prioritized performance needs over psychological needs. After coding the responses from the data obtained in the interviews, it was surprising to note that the choice for a physical relationship was preferred only if the physical aspect of the relationship was satisfying for both, the man and his partner. Often men would say that it was their wives who demonstrated the least interest for sex. Yet, the second most common rationale for wanting a physical relationship was so men could satisfy their wives. It was heart warming to observe their masculine sensitivity which was so far beyond any machismo display of behavior commonly associated with the male gender. In fact, they rated their own personal and physical enjoyment last.

The remaining 26 percent of men consisted of those who preferred a non-physical relationship. Their feelings were that there was more value in a non-physical relationship than with any aspect of physical functioning. Secondly, a small number of men felt that a physical relationship was less enjoyable now after taking into account their present functioning.

Group Differences

Although all of the men in this study received radiation treatment for prostate cancer, there was a slight variation in the method of administering treatment. The sample of men were obtained from those who were also included in a randomized

clinical trial, comparing radical radiotherapy by external beam radiation versus radical radiotherapy using a combination of temporary iridium implant plus external beam radiation in surgically staged localized or locally advanced cancer of the prostate. There are, of course, advantages and limitations when using a cohort of patients involved in a randomized clinical trial, and both the benefits and disadvantages were identified earlier, in Chapter 3.

Currently, there does not appear to be any existing documentation in the literature that actually examines and compares the psychosexual impact of the varying methods of administering radiation treatment. With an obvious division in the sample of men who received treatment in this study, there was opportunity, albeit with small numbers, to observe for any psychosexually related group differences.

Pearson's coefficient of correlation was used initially to determine whether or not any significant relationships existed between variables when the groups were examined individually. Although the possibility of some existing correlations was evident, further testing seemed appropriate to determine which of the correlations were meaningful in the small groups. The t-test for yes/no response variables, one-way analysis of variance (ANOVA), and Scheffe's test for multiple response variables were computed to examine mean differences.

Based on the analyses performed for group differences, the majority of findings were not distinguishable in either of the two groups. The few apparent correlations that showed significance were observed in individuals who received external beam radiation alone. The correlations included pre- and post-treatment communication with spouse, post-treatment sexual satisfaction, and post-treatment change in body image.

Although a unique and interesting feature of the group itself, the responses observed in the radiation alone group concerning pre- and post-treatment

communication with spouse, would not be considered significant enough when responding to the general implications of treatment. In fact, no further conclusions can be drawn from these findings. The effects of external beam radiation alone, and the significant changes in body image and sexual satisfaction, do, however, pose much more relevance when examining the psychosexual implications of one treatment method from another.

The treatment changes showing impact on one's body image after a prolonged course of external beam radiation were far more apparent, than in those who received a shorter course of external beam radiation following implant. It is important to note that the changes were reported by men in the follow-up phases after treatment, and were not associated with any of the possible acute treatment side effects that may have been experienced during treatment. Rather, the long-term effects experienced by men were the factors which had an impact on body image. The changes in body image were also associated with post-treatment sexual satisfaction ($p < .05$), and the overall post-treatment adequate or below level of sexual satisfaction ($p < .001$).

Findings of this nature can certainly offer great potential and direction for future psychosexual study. For now, the psychosexual changes reported by men in this study associated with changes in body image and post-treatment sexual satisfaction do differ in those treated with external beam radiation from those treated with implant followed by a shorter course of external beam radiation therapy. Any further academic exploration intended in this area would likely be of great value.

Implications For Research And Education

Overall, this was a very rewarding study to complete. Initially, there was a mild feeling of anxiety on the part of the researcher, since one would have to embark on a very personal journey into the sexual lives of others. The intent was to explore

what was identified in the literature as existing but relatively unreported sexual concerns of men who undergo radiation treatment for prostate cancer. In the end, there were a number of significant findings discovered, and the implications of which help to broaden our understanding of what men feel and experience as they venture onward following the treatment experience.

There are a few firsts associated with this study. This was the first study to have included available prospective data on pre-treatment sexual activity and erectile status. The issue of available prospective data has been noted as a limitation for other researchers who have studied sexuality, since they have often had to rely on retrospective information which can potentially reflect recall bias. Since the sample of men were also involved in a clinical trial, many of the pre-treatment intervening variables could be accounted for with existing documentation on performance status, medical conditions, and medication intake. As well, any changes in medical condition that developed during or after treatment could be found in the individual's medical chart. Often, these types of factors can potentially play an important role and should be considered when assessing sexual function.

This study was also the first to have included an interview format to capture the personal views of such a large number of men. The database, alone, is currently the largest in North America, and, perhaps, in the world. There was a 100 percent compliance rate from those who were contacted to participate in this study. Only three men did not partake in the interview after arrangements were made to meet. One individual was intoxicated at the time scheduled for the interview, and was therefore excluded. One man developed a flu virus and was not asked to return to be interviewed. And, finally, one man who agreed to be interviewed was later denied by the researcher as an inappropriate candidate.

Although there have been similar studies that have documented physiologic sexual function and some that touch on a few of the factors associated with sexuality, none cover as many issues as this study. Efforts were made to support the existing literature and the findings previously documented by others. The reward was the discovery of similar and, yet, more detailed description of findings in this study. As well, some of the interesting patterns to emerge from the data may well serve to encourage researchers onward to future endeavors.

Researchers, and particularly those in the medical and scientific community, must focus their work in areas that greatly affect the quality of life experiences of their patients. They need to support multidimensional assessment in sexuality, and continue to view individuals with the perspective of having biological, sociological, and psychological needs associated with all three domains of functioning. Since prostate cancer is on the increase and public awareness is rising, the implications of disease and treatment have a far greater significance in the future years to come.

Researchers also need to incorporate in their assessment, those parameters to better represent the patients' views. More so now than ever, men are speaking out about their personal battle with prostate cancer and it is no longer the hidden disease it was in the past. Researchers must also create better instrumentation for capturing the input of men and their sexual functioning and, particularly, they must make their assessment tools specific to the age and developmental level of the population who are commonly affected by specific types of cancers. It is not necessarily a difficult task since middle- to later-aged men are commonly those individuals who are diagnosed with prostate cancer.

The myth that elderly individuals are not interested in sex must be dispelled. Despite increasing evidence to the contrary, many people still believe that there is precipitous decline in libido when an individual reaches age 55, and that by age 65,

the person is essentially asexual (Derogatis & Kourtesis, 1981). Although the findings in this study show that the vast majority of men do feel that age is a factor in their sexuality, and there is indeed evidence of reduced interest in sex by the aging male, many and perhaps even the majority will remain vitally interested in sex well into their sixth and seventh decades (Derogatis & Kourtesis, 1981).

As ground breaking as this study appears, it does help to establish some recommendations for future research. One suggestion would be to conduct the interviews and administer the questionnaire before treatment as well as after treatment. This would provide more of a comparison and help establish some of the gray areas pointed out in the discussion. Also, focusing research efforts on some of the gray areas would be of particular value now that this study provides further direction for inquiry.

Researchers should focus and expand on some of the findings discussed in this thesis by incorporating a more detailed assessment. Often, the diversity and intensity of the various questions asked in the interview were difficult for all of the men to answer. In future, the formatting of more questions concerning one specific area of inquiry could eliminate some of the difficulty.

And, finally, although many of the results of this study can be generalizable to the overall population of men who are diagnosed with prostate cancer and treated with radiation therapy, including an even greater number of men in future studies would be most beneficial. This would be of particular importance when wanting to observe for group differences. Since the differences between groups were one small part in this study, the findings were intriguing, and attempts should be made to examine the effects of treatment when there is even a slight variation of administering treatment.

Implications For Practice And Education

First and foremost, when assuming the role of researcher in the health care profession, we must address the sexuality issues as they appear. We must then publish our findings in order to expand on the existing literature so that there is available information which can be accessible to the practitioner. We must not deviate from our philosophy that we care about the quality of life experiences of our patients and yet do so little to direct our efforts in providing enough information to assist them.

When we assess quality of life in practice, we must remember that it involves not only the health care professionals' observations, but also feedback provided by the patients. Patients are often grateful for direct discussion of sexual concerns and with permission to ask questions without embarrassment, many problems may be obviated altogether (Ofman & Auchincloss, 1992). Since patients look towards the health care professional for support and guidance, we must facilitate an environment to conducively allow the expression of their feelings. We must, therefore, overcome our reluctance to deal with sexual aspects and develop a level of comfort when addressing sexuality issues (Golden & Golden, 1980).

Discussion concerning the sexual effects of treatment after a diagnosis of prostate cancer is determined continues to be problematic even when patients are becoming more assertive. It is imperative that health care professionals help their patients become more informed of the impact of treatment on sexuality. Patients may then be knowledgeable participants when having to choose from the various treatment options. As well, evaluation of sexual functioning must be considered once treatment has commenced and in the follow-up phase after completing treatment. It must be an ongoing process, just as assessment of disease is an ongoing process.

And finally, since we must provide patients with intervention, we require better utilization of existing resources. We must refer our patients onwards, so they may acquire the help they need for their sexuality problems. Further resources such as written information regarding various erectile intervention and video aids that discuss treatment induced impotence can be introduced prior to the time the patient is referred to the specialist. These interventions will allow the patients to know that we care about their sexual feelings. Furthermore, the learning that is acquired from these various resources will enhance their knowledge and preparation for the often intimidating visit to the specialist.

Conclusion

On the basis that little is known as to how quality of life and particularly psychosexuality is affected by radiation therapy, the researcher set out to explore the psychosexual implications of men who are diagnosed and treated for localized prostate cancer. The findings in this study offer increased availability of information on psychosexuality so health care professionals may be better equipped to address and educate patients of the repercussions associated with treatment and disease. With the findings of this study, we are now moving even closer in the direction of understanding what is necessary for preserving psychosexual well being and enhancing quality of life.

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Appendix A: Consent Form

Hamilton Regional Cancer Centre
Brock University
Department Of Graduate Studies In Education

Informed Consent Form

Title of Study: Identifying The Psychosexual Implications of Radical Radiation Treatment In Prostate Cancer

Researchers: Professor W. Richard Bond and Researcher Alanna Baldwin, with Dr. Jinka Sathya, Darlyne Rath, and Professor Kris Kirkwood

Name of Participant: _____

I understand that this study in which I have agreed to participate will involve identifying the psychosexual implications of radical radiation treatment in prostate cancer. The extent of my involvement is to have one interview in order to identify the effects of radiation treatment on my psychosexual functioning, followed by the administration of a questionnaire that will ask me questions concerning my psychosexual well being. In total, this will require approximately sixty minutes of my time.

I understand that my participation in this study is voluntary and that I may withdraw from this study at any time and for any reason without penalty. There is no obligation to answer any question that I may find offensive.

I understand that all personal data will be kept strictly confidential and that all information will be coded so that my name is not associated with my answers.

I understand that my medical chart will be reviewed only for the purposes of obtaining confirmation of stage of prostate cancer, radiation treatment, existing medical problems and medications, as well as pre-treatment performance and sexuality status.

I understand that only the researchers named above will have access to the data.

_____ _____

Participant Signature Date

If you have any questions or concerns about your participation in the study, you can contact Alanna Baldwin at (905) 387-9495, extension 4404, or Professor Bond at (905) 688-5550, extension 4295.

Feedback about the use of the data collected will be available during the month of September, 1996, in the Hamilton Regional Cancer Centre and Brock University libraries. A written explanation will be provided for you upon request.
Thank you for your help! Please take one copy of this form with you for further reference.

_____ _____

Researcher Signature Date

Appendix B: Chart Review

1. Patient Initials _____

2. Patient Number _____

3. Stage of Prostate Cancer _____

4. Treatment _____

5. Date of Treatment Completion _____

6. Concurrent Medical Problems _____

_____

_____

7. Medications _____

_____

_____

8. Performance Status Pretreatment _____

9. Erectile Status Pretreatment _____

10. Sexual Activity Pretreatment _____

Appendix C: Interview Questions

1. When you were first diagnosed with prostate cancer and prior to having your first visit to the cancer centre, were you aware of the possibility that you could experience side effects relating to your sexual functioning from treatment for prostate cancer? Where did you obtain your sexuality information?

2. At the time you were registered for the implant study, we asked you if you were sexually active and if you were able to have erections, pre-treatment. Your response
at that time was (yes/no), you were sexually active and (yes/no), you were able to have erections.

   If your answer is no to sexual activity, and/or no to having an erection, what do you think was the reason why you were unable?

   If your answer is yes, now that your treatment is completed are you currently sexually active? Are you able to have erections?

3. Since having had treatment, has your erectile status changed in any way? How? Has your sexual activity changed in any way? How? When did these changes occur?

4. Can you think back to when you finished your treatment and describe for me all of the sexual changes that you have experienced?

5. Do you think now, since having had treatment, you have changed the way you feel physically about your body? Could you give me examples of the changes which have affected your body since treatment? Do you think now, since having had treatment, you have changed the way in which you feel inside about yourself? Why?

6. Prior to having treatment were you able to talk with your significant other about your sexual feelings?

7. Do you think that your ability to communicate with your significant other has improved since treatment? Decreased since treatment? Why do you think so?

8. If you were able to think back since treatment, what would you identify as being the most important needs you had during that time and up until now? List as many as you want.

9. Do you think being the age you are has anything to do with the way you feel about your sexuality? If so, why? Are there any other issues you feel are important now at your age as compared to say, twenty years ago?

10. If you were able to choose between a) having a close, intimate non-physical relationship with your significant other, or b) being able to physically perform to the best of your ability, what would be the most satisfying choice for you? Why ?

Appendix D: Sexuality Questionnaire

Section 1

Please complete the following section by filling in the blanks and/or circling one response for each of the questions.

1. Your present age: _____ Years

2. Your present marital status. (Circle one choice)
   1 Never married
   2 Married
   3 Divorced
   4 Separated
   5 Widowed
   6 Common law
   7 Same sex partner

3. Are you presently:
   1 Employed
   2 Unemployed
   3 Retired

4. Please describe your occupation. (If retired, what was your occupation before retirement?)

   _____

5. What was your net income over the last year?
   1 0 - $10,000
   2 11,000 - 20,000
   3 21,000 - 30,000
   4 31,000 - 40,000
   5 41,000 - 50,000
   6 over 50,000

6. What is the highest level of education you have completed?
   1 University
   2 Community College
   3 High School
   4 Other _____

7. What is your religious faith?
   1 Jewish
   2 Catholic
   3 Protestant
   4 None
   5 Other _____

8. Based on the above question, are you
   1 Very active in your religious organization?
   2 Attending weekly services only?
   3 Attending services occasionally?
   4 Very rarely attend religious services?
   5 Never attend religious services?

Section 2

The information below provides me with an indication of the frequency with which you typically engage in certain sexual activities. Please indicate how often you experience each of the sexual activities below by marking the category that is closest to your personal frequency. Categories range from "NOT AT ALL" to "4 OR MORE TIMES A DAY." Please do not skip any items.

	NOT AT ALL	LESS THAN MONTH	1-2 MONTH	1 WEEK	2-3 WEEK	4-6 WEEK	1 DAY	2-3 DAY	4 OR MORE DAY
1. Intercourse	( )	( )	( )	( )	( )	( )	( )	( )	( )
2. Masturbation	( )	( )	( )	( )	( )	( )	( )	( )	( )
3. Kissing and Petting	( )	( )	( )	( )	( )	( )	( )	( )	( )
4. Sexual Fantasies	( )	( )	( )	( )	( )	( )	( )	( )	( )

5. What would be your ideal frequency of sexual intercourse? _____

6. At what age did you first become interested in sexual activity? _____

7. At what age did you first have sexual intercourse? _____

Section 3

Below are a series of statements about various aspects of sexul behaviour. We would like to know to what extent you agree or disagree with each one. Please indicate how much you agree or disagree with each statement by placing the appropriate number from the alternatives below in the space alongside of the statement. Please do not skip any and work quickly.

-2	-1	0	1	2
STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE

---

1. ( ) Premarital intercourse is beneficial to later marital adjustment
2. ( ) Homosexuality is perverse and unhealthy
3. ( ) Sex is right only when it is intended to produce children
4. ( ) Oral sex can be as pleasurable as intercourse
5. ( ) It is unnatural for the female to be the initiator in sexual relations
6. ( ) Masturbation is a perfectly normal, healthy sexual behaviour
7. ( ) Extramarital sex inevitably leads to serious problems and great difficulty in the marriage
8. ( ) Women should never be consciously seductive but should wait upon the attentions of the man
9. ( ) Viewing erotic films is enjoyable and stimulating behaviour
10. ( ) Males and females should assume both assertive and passive roles during sexual activity
11. ( ) Most homosexuals are highly disturbed people and a danger to society
12. ( ) Any sexual behaviour between two consenting adults should be viewed as normal
13. ( ) Morality should not be a consideration in sexual behaviour
14. ( ) Dressing in various costumes to enhance sexual enjoyment should be viewed as creative sex
15. ( ) Books that contain passages explicitly describing sexual activity are trash
16. ( ) Couples that have sex before marriage usually regret it later on
17. ( ) Wifeswapping is acceptable if all four partners agree
18. ( ) Males lose respect for females who allow them to have premarital sex
19. ( ) Mutual masturbation in a married couple is a poor substitute for intercourse
20. ( ) Prostitutes are immoral and degrading and have no place in society
21. ( ) Human genitals are somewhat disgusting to look at
22. ( ) Holding and touching my partner's body is exciting and thrilling
23. ( ) Group sex is a bizarre and disgusting idea

24. ( ) Extramarital sexual affairs can make people better marital partners
25. ( ) Couples should experiment with various positions of intercourse to enhance their sexual experiences
26. ( ) Masturbation fantasies are healthy forms of sexual release
27. ( ) Homosexuality is simply a question of sexual orientation and not good or bad, sick or healthy
28. ( ) Oral-genital sex is not within the range of normal sexuality
29. ( ) A picture of a nude woman can be a beautiful and exciting thing to look at
30. ( ) Pornography is perverse and disgusting in general and particularly harmful in the hands of young people

Section 4

Below are some statements concerning how you view your body. Please indicate to what degree each of the following statements is true of you by circling the number that best describes your experience.

	NOT AT ALL	SLIGHTLY	MODERATELY	QUITE A BIT	EXTREMELY
1. I am less attractive than I would like to be	0	1	2	3	4
2. I am too fat	0	1	2	3	4
3. I enjoy being seen in a bathing suit	0	1	2	3	4
4. I am too thin	0	1	2	3	4
5. I would be embarassed to be seen nude by a lover	0	1	2	3	4
6. I am too short	0	1	2	3	4
7. There are parts of my body I don't like at all	0	1	2	3	4
8. I am too tall	0	1	2	3	4
9. I have too much body hair	0	1	2	3	4
10. My face is attractive	0	1	2	3	4
11. I have a well-proportioned body	0	1	2	3	4
12. I am satisfied with the size of my penis	0	1	2	3	4
13. Women would find my body attractive	0	1	2	3	4
14. I am well-coordinated and athletic	0	1	2	3	4
15. I am pleased with the physical condition of my body	0	1	2	3	4

Section 5

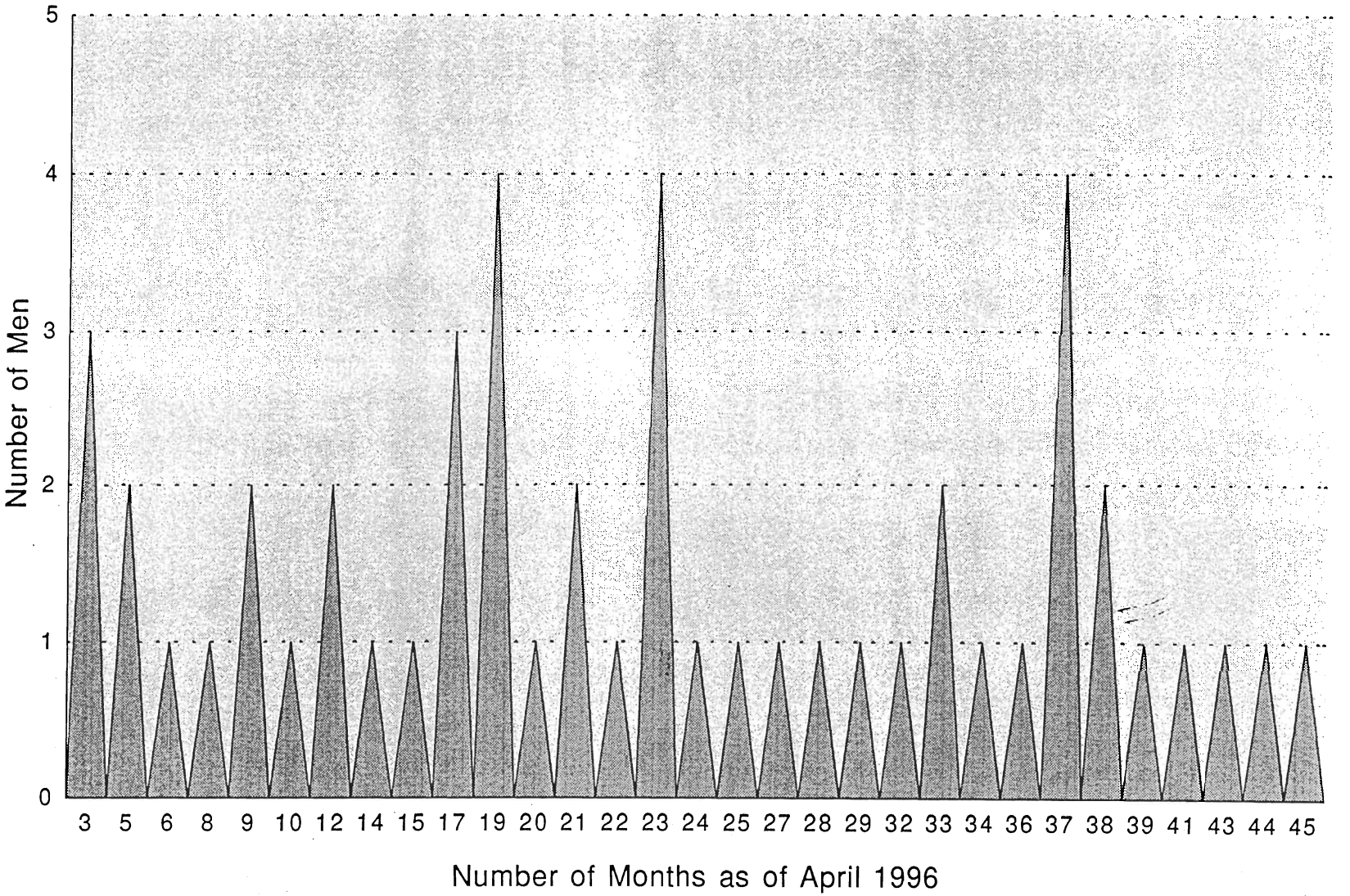
Below are some statements about sexual satisfaction. Please indicate whether each statement is true of you by circling either true or false for each item.

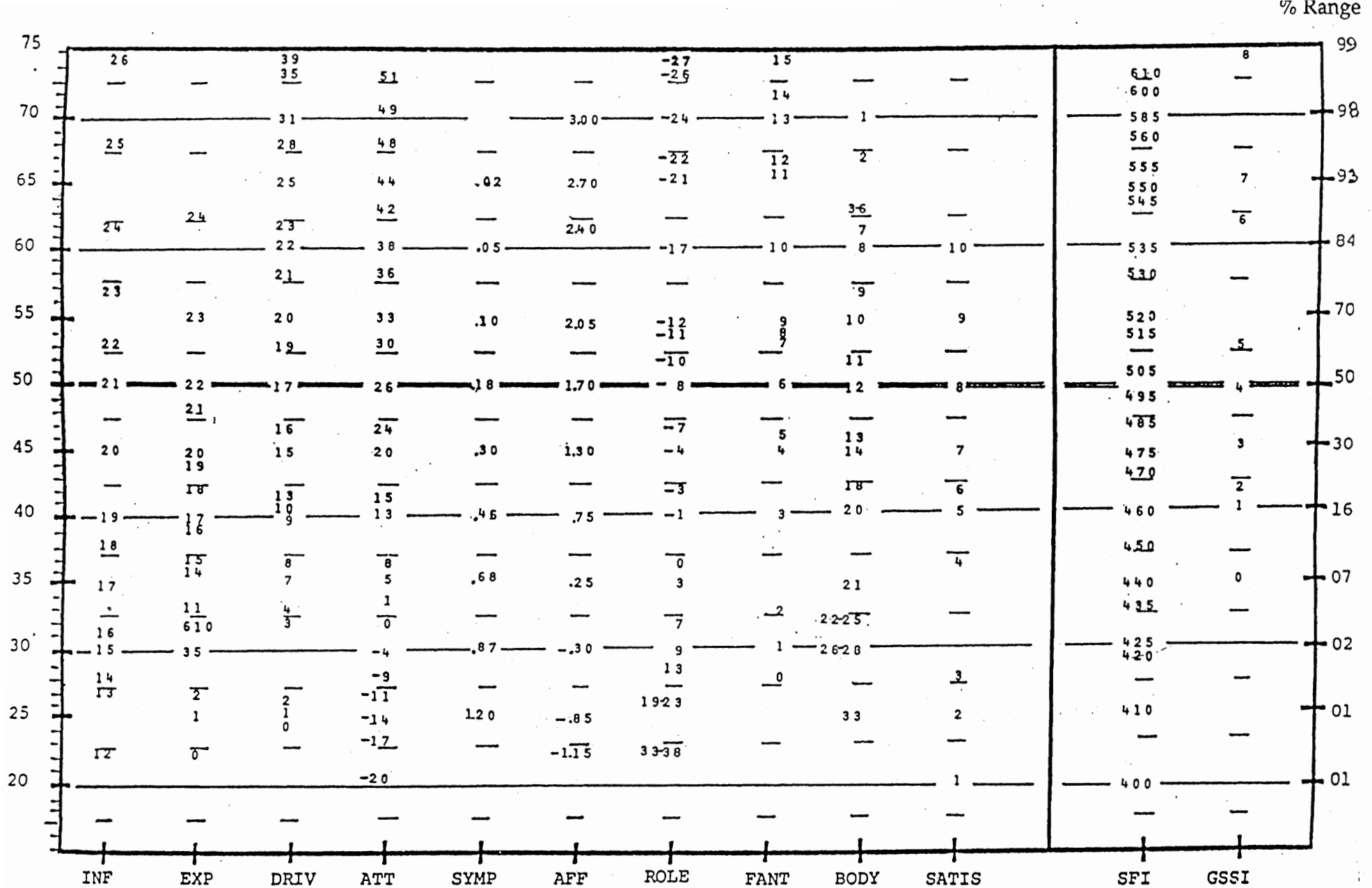
	TRUE	FALSE
1. Usually, I am satisfied with my sexual partner	T	F
2. I feel I do not have sex frequently enough	T	F
3. There is not enough variety in my sex life	T	F
4. Usually, after sex I do not feel relaxed and fulfilled	T	F
5. Usually, sex does not last long enough	T	F
6. I am not very interested in sex	T	F
7. Usually, I have a satisfying orgasm with sex	T	F
8. Foreplay before intercourse is usually very arousing for me	T	F
9. Often, I worry about my sexual performance	T	F
10. Usually, my partner and I have good communication about sex	T	F

Below is a rating scale upon which I would like you to record your personal evaluation of how satisfying your sexual relationship is. The rating is simple. Make your evaluation by placing a check mark in the appropriate box that best describes your present sexual relationship.

( ) 8 Could not be better
( ) 7 Excellent
( ) 6 Good
( ) 5 Above average
( ) 4 Adequate
( ) 3 Somewhat inadequate
( ) 2 Poor
( ) 1 Highly inadequate
( ) 0 Could not be worse

NUMBER OF MONTHS FROM LAST DAY OF TREATMENT





T													
Raw													

INSTRUCTIONS FOR USE OF THE DSFI SCORE PROFILE

THE SCORE PROFILE ON THE REVERSE SIDE IS DESIGNED TO REPRESENT SCORES ON THE SUBTESTS OF THE DEROGATIS SEXUAL FUNCTIONING INVENTORY (DSFI) IN STANDARDIZED FORM. THE 10 SUBSCALES OF THE DSFI AND THE 2 GLOBAL SCORES MAY BE PLOTTED ON THE GRID.

IDEALLY, THE PROFILE SHEET WILL BE USED IN CONJUNCTION WITH THE FORMAL NORMS AND MANUAL FOR THE DSFI; HOWEVER, EVEN WITHOUT THESE A SUBJECTS PROFILE MAY BE PLOTTED WITH ACCEPTABLE ACCURACY.

A STANDARD T-SCORE IS REPRESENTED ON THE VERTICAL AXIS OF THE LEFT SIDE OF THE GRID AND CENTILE EQUIVALENTS OF THE T-SCORES ARE GIVEN ON THE RIGHT HAND VERTICAL AXIS. TO PLOT THE DSFI PROFILE, START WITH THE RAW SCORES FROM THE DSFI ANSWER SHEET. IF THE MANUAL IS AVAILABLE, TAKE EACH RAW SCORE AND LOCATE THE CORRECT T-SCORE IN THE GENDER APPROPRIATE NORM. PLACE A POINT IN THE CORRECT COLUMN AT THE LEVEL OF THAT T-SCORE. CONNECT THE 10 POINTS WITH STRAIGHT LINES AND THE PROFILE HAS BEEN PLOTTED. TO CALCULATE THE SEXUAL FUNCTIONING INDEX (SFI), SUM THE 10 T-SCORE VALUES FROM THE DSFI SUBTESTS, AND LOOK UP THE T-SCORE EQUIVALENT FOR THIS RAW OVERALL VALUE.

IF A MANUAL IS NOT AVAILABLE, THE RAW SCORES PRINTED IN THE COLUMNS ALLOW A GOOD APPROXIMATION TO THE EXACT PROFILE TO BE PLOTTED. TAKE THE RAW SCORE FROM THE ANSWER SHEET AND LOCATE IT IN THE APPROPRIATE COLUMN. IF THE EXACT RAW SCORE IS NOT PRINTED THERE, INTERPOLATE BETWEEN THE TWO CLOSEST RAW SCORES THAT ARE AVAILABLE. MAKE YOUR POINTS IN THIS MANNER AND THEN CONNECT THEM TO ARRIVE AT A PROFILE.

IN INTERPRETING DSFI PROFILES, DEVIATIONS BELOW THE 50th CENTILE ARE INTERPRETED AS RELATIVE DEFICIENCIES IN IMPORTANT ASPECTS OF SEXUAL FUNCTIONING, WHILE ELEVATIONS ABOVE THE 50th CENTILE ARE VIEWED AS RELATIVE STRENGTHS. THE SEXUAL FUNCTIONING INDEX (SFI) IS THE OVERALL SCORE ON THE TEST AND IS THE SUMMARY SCORE OF THE SUBJECT'S GLOBAL LEVEL OF SEXUAL FUNCTIONING. THE GSSI SCORE IS SIMPLY TAKEN FROM THE ANSWER SHEET AND REPRESENTS THE PATIENT'S CONSCIOUS EVALUATION OF HIS/HER CURRENT LEVEL OF SEXUAL FUNCTIONING.

SUMMARY STEPS

1) TAKE RAW SCORES FROM ANSWER SHEET
2) FIND APPROPRIATE T-SCORE
3) PLOT AND CONNECT POINTS FOR T-SCORES
4) SUM SUBTEST T-SCORES TO ARRIVE AT RAW SFI SCORE
5) LOCATE APPROPRIATE SFI-T SCORE
6) INTERPRET PROFILE IN TERMS OF CENTILE EQUIVALENTS

Appendix G: Prior Knowledge of Sexuality Information at the Time of Diagnosis

N = 50

Source	N	%
No prior knowledge	27	54
Urologist	15	30
Family G.P.	6	12
Television	4	8
Literature	12	24
Others	3	6
General knowledge	1	2